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ABSTRACT

This report describes a study that explored procedures for identifying high ability children from disadvantaged socioeconomic and ethnic backgrounds. The study constituted the initial phase of the 1980 Priority Exceptional Students' Study, conducted by the Education Department of Western Australia. Focusing on primary school children in the Perth metropolitan area, the initial study (1) identified culturally and socioeconomically disadvantaged students, based on teachers' ratings of home background influences on achievement, and on the pupils' own reports of their backgrounds; (2) identified high ability students based on students' achievement on different tests; and (3) examined issues and approaches in identifying students who were both gifted and disadvantaged. The study considered four alternative approaches for identifying disadvantaged gifted students, according to particular concepts: (1) high achievers in priority schools; (2) high ability underachievers; (3) highest achievers within ethnic groups; and (4) high achieving socioeconomically disadvantaged students. Case profiles of typical students in each category were used in comparing the four approaches. It is suggested that depending on operational definitions and selection criteria used, different types of gifted disadvantaged students will be identified. It was also suggested that nonverbal intelligence tests are limited as criteria for identifying giftedness, and that programs designed for high ability disadvantaged students must have clearly stated purposes and assumptions. (Author/MJL)

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IDENTIFYING HIGH-ABILITY DISADVANTAGED STUDENTS

DISCUSSION PAPER
No. 13

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Recognition that there were highly able students in educationally disadvantaged groups raised the question of whether part of the effort being channelled into programmes for 'disadvantaged' children should be directed at meeting the needs of highly able students.

A crucial issue underlying these efforts is whether the kind of identification procedures and teaching methods appropriate for high-ability children, generally, are appropriate for high-ability children from culturally and socio-economically disadvantaged backgrounds, or whether the latter constitute quite a different group (or groups) with their own interests and learning patterns. The Priority Exceptional Students' Study (PrESS) was initiated at Research Branch to consider this issue with regard to high-ability students in six Government primary schools in the south-west metropolitan region of Western Australia. An initial report on identification procedures has been issued as Discussion Paper No. 15.

Discussion Paper No. 13

IDENTIFYING HIGH-ABILITY DISADVANTAGED STUDENTS

A First Report of the
Priority Exceptional Students' Study

P. Deschamp
G. Robson
C. Nash

Research Branch
Education Department of Western Australia
October, 1981

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FOREWORD

Recent developments in education have emphasized the importance of trying to adapt education systems to cater for the needs of special groups. The education of disadvantaged minority groups such as non-English speaking migrants and those living in geographically isolated communities, has attracted concern at national and State levels. Funds have been made available through the Priority Schools Programmes of the Schools Commission to assist schools that have significant numbers of disadvantaged students.

The Education Department of Western Australia has pursued, quite vigorously, a policy of development of special provisions for exceptional children: exceptional in some instances because of a physical, mental or social disability; exceptional in other instances because of intellectual or artistic talent. In addition to the development of selected metropolitan high schools to specialize in languages, music, and dance, the Department established the Gifted and Talented Children's Project Group to co-ordinate policy-making and special programmes in the area of education for the gifted. The Priority Exceptional Students' Study is a further significant example of the Department's concern to continue its efforts to provide for children with special needs.

During a visit to Israel in 1979 I was impressed by the work of Dr Moshe Smilansky, Professor of Education at Tel Aviv University, in assisting disadvantaged-gifted children. Over a period of nearly 20 years, Smilansky and his researchers developed compensatory education programmes to help able North African and Oriental immigrant children to achieve success within the Israeli education system. I felt that a similar research project undertaken in Western Australian schools would benefit high-ability youngsters from the disadvantaged sectors of our community.

For this reason I asked the Research Branch to examine ways of identifying and making special provision for such children. This initial project report is intended to contribute to discussion about methods of identifying high-ability children from different social and ethnic backgrounds. I urge principals and teachers to consider the concepts and procedures set out in this report for application to the children in their care. I would like to express my appreciation to the Research Branch team who have conducted the project, to the teachers and principals of the schools who have co-operated with the project, and to the staff of the Metropolitan South-west Regional Office who have given the project important moral and practical support.

D. Mossenson

DIRECTOR-GENERAL OF EDUCATION

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Special acknowledgement is due also to the six principals who granted the team access to their schools, and to the teachers in those schools who provided much valuable information.

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1: THE PRIORITY EXCEPTIONAL STUDENTS' STUDY

The Priority Exceptional Students' Study was initiated at the beginning of 1980 to trial special provisions for high-ability students from disadvantaged backgrounds. The stimulus for the study was a concern that schools in neighbourhoods with high cultural diversity and severe socio-economic problems may have high ability students whose educational needs are being overlooked by the range of special provisions available.

1.1 The Concept of the Disadvantaged Gifted Student

Interest in educational provisions for 'disadvantaged' students gained impetus after it became apparent that a disproportionately high number of students failing to complete their secondary education came from lower socio-economic groups. This was demonstrated by surveys completed by social scientists such as Glass (1954) in the United Kingdom, Radford (1962) in Australia, and Coleman et.al. (1966) in the United States. It became commonly accepted that home environment factors reduced the capacity of these students to compete with students from backgrounds that more closely matched the demands of the formal education system. Attempts to alleviate the educational disadvantage of such students, gave rise to programmes such as 'Headstart' and 'Follow Through' in the United States, the 'Educational Priority Areas' in Britain and the 'Disadvantaged Schools Programme'* in Australia.

Smilansky provides an explanation of factors causing socio-economic disadvantage, viz.

> *Each group, whether it be of ethnic, social class, economic or geographic origin, possesses its own unique cultural patterns as well as its own social interests which may contradict and clash with the expectations, patterns, interests and institutions of a dominant group. As a result, the minority group is unable to obtain certain socio-cultural privileges and opportunities and becomes culturally disadvantaged. (Smilansky and Nevo, 1975, p.275.)*

The focus of concern in programmes intended to ameliorate disadvantage tended to be upon those failing to master basic skills of literacy and numeracy. Such ameliorative programmes often overlooked the diversity of ability within the disadvantaged sector.

The re-emergence of an emphasis on gifted pupils, (Goldberg, 1979), may have helped to alert researchers and policy makers to the existence of highly able children in schools and areas classified as 'disadvantaged'. Perhaps Passow's comment reflects this growth in awareness when he suggests that highly able disadvantaged children represent 'a nation's largest unmined source of talent'. He asserts:

---

* A funding programme for disadvantaged students supported by Federal Government funds through the Schools Commission (more recently entitled 'Priority Schools Programme').

Aside from the humanitarian aspects of overcoming poverty and discrimination, aside from the moral values of providing equal opportunity for all, the nation's welfare and survival depends on its success in identifying and nurturing talents of many kinds wherever they may be found. (Passow, 1963, p.24)

Recognition that there were highly able students in educationally disadvantaged groups raised the question of whether part of the effort being channelled into programmes for 'disadvantaged' children should be directed at meeting the highly able students. The findings of Getzels and Jackson (1963), Newland (1963) and Frierson (1965) have pointed to the fact that high ability students are likely to have attitudes, interests and learning patterns which are different from those of the less able students and that therefore different syllabus content, rates of progress and teaching styles must be required for highly able students. 'Too often ignored are ... the psychological ways of learning and doing things which most fundamentally and uniquely delineate the students of high ability'. (Newland, 1963, p.393)

The increasingly polygot nature of modern societies also has implications for education. People who share common cultural backgrounds will share, to a large extent, common patterns of intellectual ability, thinking styles and interests. (Stodolosky and Lesser, 1967; Lesser, Fifer and Clark, 1965; Lesser, 1976). Some cultural groups have different expectations and orientations to education from the dominant group. Marjoribanks (1972 and 1979.) Students from such groups may benefit from approaches to instruction that recognize their particular characteristics.

In recent years there has been an increased awareness of the special interests and learning patterns of high-ability students and of culturally 'different' students. In addition, concern has been expressed for students who fit into both categories. There is growing interest in identifying 'disadvantaged/gifted' students and implementing special educational provisions.

A crucial issue underlying these efforts is whether the kind of identification procedures and teaching methods appropriate for high-ability children, generally, is appropriate for high-ability children from culturally and socio-economically disadvantaged backgrounds, or whether the latter constitute quite a different group (or groups) with their own interests and learning patterns. The Priority Exceptional Students' Study (PrESS) was initiated to consider this issue with regard to high-ability students in six Government primary schools in Western Australia.

1.2 Aims of the PrESS Project

The broad aims of the project for 1980 were to

1. Consider the implications of adopting different notions of high-ability disadvantaged pupils.

2. Develop procedures and instruments useful to schools for identifying highly able students from disadvantaged backgrounds.

3. Study the achievement patterns, interests, classroom behaviour and home backgrounds of the students identified in order to develop hypotheses about the factors influencing their levels of performance and suggest suitable teaching strategies, topics and curriculum materials for trial in the classroom.

This first report focuses on the conceptual framework and identification procedures phases of the project. Later reports will address questions relating to appropriate programmes for such students.

2: IDENTIFYING DISADVANTAGED STUDENTS

The pilot phase of the study attempted to identify high-ability students who came from culturally or socio-economically disadvantaged backgrounds. The implications of selecting students on the basis of four different concepts of disadvantage were investigated.

2.1 Concepts of Disadvantage

Some researchers have equated membership of a low status ethnic group with socio-economic disadvantage (Smilansky, 1979). Others have focused on the relative disadvantage that attaches to membership of the 'working class' (Halsey, 1972). In Australia 'socio-economic disadvantage' has generally been accepted as an amalgam of ethnicity and socio-economic status.

These variations with respect to notions of 'disadvantage' indicate disagreement about its causes and effects. Clearly, the position taken on this point would influence a research project critically. A review of the concepts used by other researchers indicates that the most commonly accepted alternatives were to

Consider that all students attending 'disadvantaged' schools (as defined by the Priority Schools Programme) are disadvantaged.

Regard underachievement as a sign of disadvantage.*

Regard membership of a particular ethnic group as sufficient grounds for classifying individual children as disadvantaged.**

Regard recognized elements of ethnicity and socio-economic status as possible sources of disadvantage and to attempt to weigh the influence of each factor when classifying individual students.

The implications of adopting each of the above notions are considered in the course of this report.

2.2 The Region and the Schools

Data that had been gathered for the Priority Schools Programme was used to identify six geographically proximate schools in an area with high cultural diversity, low average income and high unemployment. The study was carried out among Years 5 and 6 pupils in six primary schools in the Fremantle region of the Perth metropolitan area.

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* This notion hinges upon test results. Accordingly, further consideration is left to Chapter Four.

** It should be stressed that this alternative does not imply value judgements about ethnic groups. Rather it refers to the socio-economic disadvantages accruing from 'the clash of expectations and interests' with those of the dominant groups.

Fremantle is the port for Perth and much of Western Australia. Although close to the city of Perth, Fremantle has retained a strong district identity and sense of community attachment. While the port has attracted a range of socio-economic groups, the fabric of social life has been integrated around local community concerns.

Following World War II the movement into the area of large numbers of European migrants resulted in the growth of local industry. Along the coast south of the harbour, the fishing industry has been developed by a southern European migrant community which was at first largely Italian, but more recently has taken on a predominantly Portuguese character. There is also a large Yugoslav population with links to the Spearwood area and the market gardening industry. To the east, the O'Connor industrial area provides employment for skilled and unskilled workers.

While the people have retained a strong sense of local identity, Fremantle now has a very cosmopolitan population. The most recent influx has been high socio-economic status families. Fremantle's style of life and architectural character has attracted a new group of young professionals and semi-professionals with the result that considerable real estate development (and redevelopment) has occurred.

Although all of the schools in the study came at the lower end of the scale on the index of socio-economic-status reported in Table 1, there is no suggestion that the population suffers the extreme deprivation of some inner-city minority groups in other countries.

However, the concentration of low-income migrant groups and working-class Australian families together with the State Housing Commission flats in the area made it an appropriate place in which to locate this study.

Tables 1 and 2 provide an indication of the ethnic and socio-economic backgrounds of the present population of the six schools included in the study. The importance of particular factors affecting socio-economic status varied between schools. For example, the 'language' factor appears more important at Limestone Park and Tine Grove, but at Champville the percentage of single parent families is of greater significance.

In all six schools there has been recognition of the specific needs of the multi-ethnic population. One school has a migrant language programme to cater for the relatively high proportion of children who have poor English language skills. Another has promoted after-school classes in English to assist parents in their attempts to learn the language. A third has attempted to foster the integration of various ethnic groups through a series of camps and excursions. All of the schools emphasize reading programmes. Remedial reading groups are available in almost all the schools and, in some cases, children are drawn out of class for special work with an experienced teacher or specially trained remedial teacher.

Table 2 indicates that there is not only considerable ethnic diversity in the schools but also that the range of diversity varies from school to school. Whereas Limestone Park and Tine Grove have significant proportions of all ethnic groups, the population at Champville and Hope Valley are predominantly Australian with small proportions of the other groups.

The considerable differences in the quality of housing in the areas adjacent to each of the schools also suggests that the range of socio-economic status across the area is considerable.

TABLE 1: SOCIO-ECONOMIC STATUS OF THE SCHOOL POPULATION*

SCHOOL	S.E.S. INDEX*	% PARENTS NOT EMPLOYED	% PARENTS NO ENGLISH	% PARENTS ENGLISH + 1**	% PAPENTS ENGLISH + 2***	% ABORIGINAL	% SINGLE PARENTS	AVERAGE INCOME > $7 000
Limestone Park (268)	337.4	3.67	7.2	32.2	2.1	0.3	4.5	✓
Weston (292)	254.7	5.42	6.2	26.0	2.4	1.9	4.2	✓
Champville (350)	277	3.04	1.8	15.2	1.4	1.9	5.8	
Oryton (195)	364	5.42	6.2	26.0	2.4	1.9	4.2	✓
Tine Grove (461)	288	3.67	7.2	32.2	2.1	0.3	4.5	
Hope Valley (461)	322	3.04	1.8	15.2	1.4	1.0	5.8	✓

* The socio-economic status index is based upon the nature of parents' occupations. Of the schools which applied to join the Priority Schools Programmes the lowest socio-economic status rating was approximately 200, and the highest was approximately 700. (See Appendix 1 for a guide to the method of calculating the index.)

The other columns were compiled from census data.

** i.e. The percentage of parents who speak English and <u>one</u> other language.

*** i.e. The percentage of parents who speak English and <u>two</u> other languages.

TABLE 2: MAJOR ETHNIC GROUPS IN YEARS 5 AND 6 IN EACH SCHOOL*

SCHOOL	% AUSTRALIAN	% BRITISH	% ITALIAN	% YUGOSLAV	% PORTUGUESE	% OTHERS**
Limestone Park (Years 5 & 6 n = 87)	42.1	12.0	23.2	8.5	11.4	2.8
Weston (Years 5 & 6 n = 93)	46.5	11.3	26.8	5.3	6.2	3.9
Champville (Years 5 & 6 n = 109)	68.6	9.7	11.8	2.3	2.9	4.7
Oryton (Years 5 & 6 n = 49	44.6	2.0	29.5	10.3	6.1	7.5
Tine Grove (Years 5 & 6 n = 96	40.3	10.1	30.7	8.1	4.1	6.7
Hope Valley (Years 5 & 6 n = 142	54.2	7.3	17.3	7.3	5.5	8.4

2.3 Identifying Culturally and Socio-economically Disadvantaged Students

2.3.1 Teachers' Ratings

In initial meetings with the staff of the six schools invited to participate in the project, teachers familiar with the Year 5 and 6 children were asked to pool their knowledge of the pupils' backgrounds and family circumstances to give them a global rating as to the influence of the home background on their school results. On a later school visit, teachers were asked to indicate for each child whether they believed there were important factors such as educational background of the parents, family stability, economic circumstances of the family, or language spoken at home that were influencing the child's school performance.***

Figure 1 shows the teachers' ratings of the influence of students' background on school achievement. The importance of the result lies in the number of children rated as being strongly disadvantaged in their schooling on the various factors.

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* This data was compiled from student self-reports and represents the family nationality as perceived by the students.

** Apart from the major ethnic groups mentioned, several of the schools have Turkish, Greek, Spanish, Aboriginal and Asian children.

*** See Appendix 2 for a copy of the rating scale.

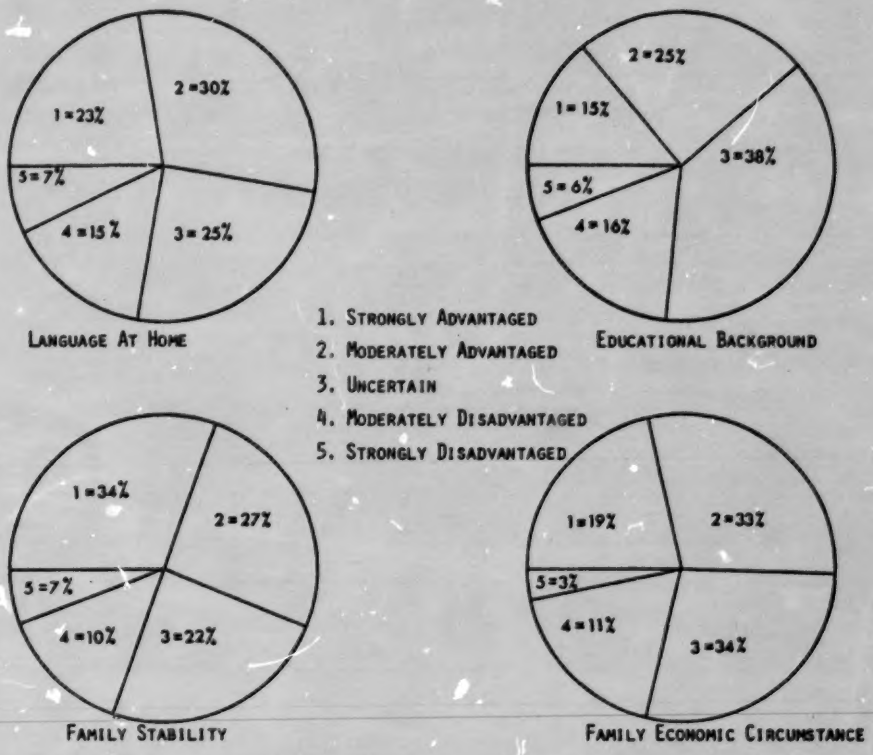

FIGURE 1: TEACHERS' RATINGS OF STUDENTS' HOME BACKGROUNDS

2.3.2 Pupils' Self Reports

All pupils were asked to complete a form to show their nationality, their place of birth, the place of birth of their parents, the number of years the family had been in Australia, and the language usually spoken at home.

A summary of ethnic group membership, language spoken at home, and number of years in Australia from the student questionnaire is shown in Table 3. Of the 174 students whose parents came from non-English speaking countries, 132 families still spoke their ethnic language in the home and yet only 18 families had moved to Australia within the last seven years.

2.4 Students Accepted as Disadvantaged

The teachers' ratings are not compatible with the notion that underlies the first concept of disadvantage listed at the beginning of this chapter (i.e. that all students in priority schools are disadvantaged). The adoption of such a gross identification criterion would fail to recognize the diversity of student home backgrounds shown to exist even in this generally disadvantaged area, so that students from affluent, highly supportive families, where both parents have high tertiary qualifications and professional occupations, would be categorized as disadvantaged.

TABLE 3: ETHNIC GROUP, LENGTH OF RESIDENCE AND LANGUAGE SPOKEN AT HOME

ETHNIC GROUP	YEARS IN AUSTRALIA	LANGUAGE AT HOME	NO.	% OF POPULATION
AUSTRALIAN	All	English	228	51.9
ITALIANS	> 7	English	17	3.9
"	> 7	No English	74	16.9
"	< 7	English	-	-
"	< 7	No English	-	-
PORTUGUESE	> 7	English	4	0.9
"	> 7	No English	19	4.3
"	< 7	English	-	-
"	< 7	No English	5	1.
YUGOSLAV	> 7	English	5	1.1
"	> 7	No English	23	5.2
"	< 7	English	2	0.5
"	< 7	No English	6	1.4
BRITISH	> 7	English	23	5.2
	< 7	English	8	1.8
OTHER	> 7	English	16	3.7
	> 7	No English	5	1.1
	< 7	English	4	0.9
	< 7	No English	-	
TOTALS:			439	100

The approach to disadvantage using the notion of cultural difference was not supported by the information about the region and the students. Wide diversity of parent educational background, occupation, affluence and teachers' ratings of home background existed within each of the ethnic groups.

Procedures that rate students across several measures - such as parent occupation - to arrive at a composite score, are quite likely to fail to identify students particularly disadvantaged on just one measure. While some students were shown to be highly disadvantaged according to several criteria, many students were outstanding on one or two dimensions only and would not be identified by a composite score approach. For the purposes of this study pupils rated as moderately or strongly disadvantaged in any one of the four factors were regarded as 'disadvantaged'. Special note was made of pupils with a 'strongly disadvantaged' rating in any one factor and those rated as disadvantaged on more than one factor. This resulted in 225 (42 per cent of the total number of pupils) being categorized as disadvantaged.

3: IDENTIFYING HIGH-ABILITY STUDENTS

Different ways of conceptualizing ability require different sorts of identification procedures which would consequently identify different students. The traditional psychometric position of the structure of mental ability assumes the existence of a general intellectual factor which is measurable by standardized I.Q. tests (Vernon, 1979, p.1). This unitary concept of intelligence has increasingly come under challenge. It is reasonable to suppose that people will vary in intelligence just as they vary in weight; however,the 'intellectual capacity' aspect of intelligence which suggests a mostly innate, fixed upper limit for each individual has been increasingly rejected in favour of a more environmentally influenced capacity.

An individual's results can vary considerably between different types of I.Q. tests. Many I.Q. tests (such as the WISC-R) are divided into sub tests to show results for different facets of 'intelligence'. Which facets are appropriate, and how many facets are required in order to embrace intelligence adequately are very much live questions.

It might be thought that by employing standardized I.Q. tests the project was adopting basically a unitary concept of ability. However, the position adopted was that the non-verbal I.Q. results are an indication of at least one type of reasoning ability. While acknowledging that there are a great many other important areas in which people can demonstrate ability, such as leadership, music, or sport, the project focused on students who could demonstrate a high level of ability in mathematics, reading, or the abstract thinking required by non-verbal 'intelligence' tests.

Ability cannot be measured directly. To obtain an indication of a student's ability in a particular area, one must either measure performance in that area or measure factors that correlate highly with achievement in it. Generally the most accurate indication of high ability in a particular area will be high achievement. If that approach cannot be used, aptitude measures must be sought.*

Intelligence tests have long been used as predictors of school success and as measures of ability. However various intelligence tests measure achievement on item types ranging from pictorial puzzles to the completion of alpha-numeric sequences. Consequently, people can get substantially differing results on different I.Q. measures. Tests that rely upon language and mathematical understanding are likely to be heavily influenced by school learning.

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* The accuracy of teachers' judgements about student ability is one of the recurring issues associated with the identification of intellectually talented children. Gear (1976) provides a review of research results on this question. Many selection procedures rely on teacher referrals as an initial screen. The costs and problems of wide-scale testing have encouraged researchers to look to teacher identification procedures; however, the question of their accuracy remains in doubt.

It has been argued that non-verbal ability tests are less dependent on school related knowledge, and are useful indicators of individuals' reasoning ability (Marjoribanks, 1979.) Results on achievement tests (for example, in mathematics and reading) are considered more likely to be influenced by background factors than non-verbal I.Q. test results. Thus, if a student is able to score highly on non-verbal tests of reasoning ability, but consistently scores well below average on tests of achievement in reading and mathematics, it could be considered that factors other than reasoning ability are depressing school performance. However, in view of the results obtained in this and other studies,* the strategy of using non-verbal I.Q. tests in this manner could not be adopted. The results of particular groups on the non-verbal I.Q. tests showed almost identical patterns to their achievement test scores. Therefore, in this study the non-verbal I.Q. test results have been regarded as relatively language-free measures of student achievement in abstract reasoning.

3.1 Procedures Used to Gather Information about Students' Achievement Levels

While the information about student background was being gathered, teachers were also asked to give a global rating of each child's achievement in school work generally. At a later meeting teachers were asked to rate the pupils' ability levels in oral comprehension, written comprehension, oral expression, written expression, number concept understanding, problem solving in number, general reasoning ability and imagination.**

In addition, the following standardized tests were administered to all of the pupils in Years 5 and 6:***

1. ACER Word Knowledge
2. ACER Reading Comprehension
3. ACER Arithmetic
4. ACER AM4
5. Ravens Standard Progressive Matrices (Black and White)
6. Jenkins Intermediate Non-Verbal

These tests were selected because of their suitability for the age group and for their lack of interpretative language. The reading comprehension test was chosen because it tested literal understanding of written passages rather than inferential comprehension skills, such as understanding characterization, or the atmosphere created by a story. Fifty students with high results on the non-verbal IQ tests were given the WISC-R test individually by a guidance officer.

3.2 Results

The teachers' ratings of student ability are shown in Table 4. The results of the two reading and five arithmetic tests are shown in Appendix 3. They indicate that the tests were at a suitable difficulty level for this group of students.

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* Vernon, 1979, p.5.

** See Appendix 2 for a copy of the rating scale.

*** A brief description of the tests is contained in Appendix 8.

TABLE 4: TEACHERS' RATINGS OF STUDENTS' ABILITY

	% V.GOOD	% GOOD	% AVERAGE	% WEAK	% V.WEAK
	1	2	3	4	5
1. ORAL COMPREHENSION	16.5	30.9	33.9	15.6	3.1
2. WRITTEN COMPREHENSION	12.4	28.7	36.4	19.6	2.9
3. ORAL EXPRESSION	13.6	26.2	46.4	12.2	1.2
4. WRITTEN EXPRESSION	12.9	25.7	40.2	16.4	4.8
5. NUMBER CONCEPT	13.8	32.8	31.4	18.1	3.8
6. PROBLEM SOLVING	10.9	23.8	34.5	23.8	6.9
7. REASONING ABILITY	15.0	28.6	41.9	12.4	2.1
8. IMAGINATION	7.9	31.2	46.7	13.8	0.2

The distribution of normed scores on both the Ravens Standard Progressive Matrices and Jenkins Intermediate Non-Verbal Intelligence Test indicate that a disproportionate number of students achieved high scores. (See Figure 2 and Table 5.) The tests appear to lack a suitable gradation of item difficulty to discriminate between students in the top five to ten per cent of this age level.*

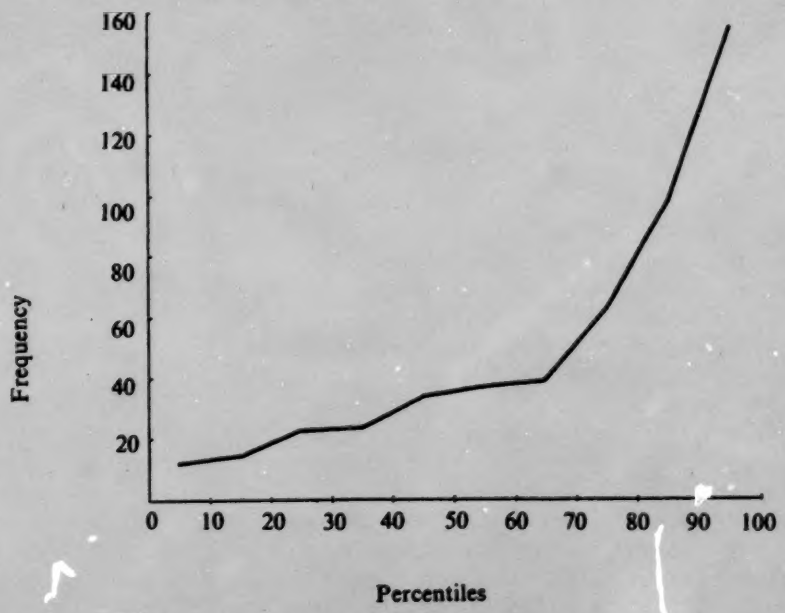

FIGURE 2: DISTRIBUTION OF NORMED SCORES ON THE RAVENS STANDARD PROGRESSIVE MATRICES

* According to the non-verbal I.Q. test norms, the proportion of high-ability students in the population tested was much higher than would be expected in a random sample of Australian students. The norms available for the Australian population are very old.

Other evidence confirmed the existence of a substantial number of high-ability students within the sample schools. Of 50 students also given the individual WISC-R test, 10 (1.9% of the total population) scored above 130, and 24 (4.5%) scored above 120.

TABLE 5: DESCRIPTIVE STATISTICS - RAVENS STANDARD PROGRESSIVE MATRICES (NORMED SCORES SHOWN IN PERCENTILES)

	MEAN	MEDIAN	RANGE
RAVENS	71.0	79.2	1-99

Table 6 shows the extent to which the same students would be selected by the different test results. The upper part of the table shows overlap between the top students on the non-verbal I.Q. tests and the top students on the other results. For example, the top three per cent of the students selected by non-verbal I.Q. tests and the top three per cent of students selected by the individual full scale WISC-R had only 40 per cent of the students in common. The lower part of the table shows the percentage overlap when the reading and mathematics scores are used as the basis for comparison. These results are calculated from Appendices 6 and 7.

TABLE 6: EXTENT TO WHICH THE SAME PUPILS WERE SELECTED BY DIFFERENT SELECTION CRITERIA

SELECTION CRITERIA		INDIVIDUAL WISC-R FULL-SCALE	NON-VERBAL I.Q. TESTS	TEACHERS' GLOBAL RATING	TEACHERS' STRUCTURED RATING	READING AND MATHEMATICS ACHIEVEMENT
BASE	CUT OFF					
NON-VERBAL I.Q. TESTS	TOP 3%	40%	-	20%	27%	27%
	TOP 5%	44%	-	52%	40%	40%
	TOP 10%	58%	-	48%	38%	50%
READING AND MATHEMATICS ACHIEVEMENT	TOP 3%	33%	27%	40%	47%	-
	TOP 5%	40%	40%	56%	60%	-
	TOP 10%	28%	50%	48%	50%	-

Figure 3 shows the minimum and the maximum cases with respect to agreement between the childen selected by the different criteria shown on Table 6.

Since at best there is only about half of the selected students in common for any two identification procedures, it is clear that either different concepts of ability are involved, or errors of measurement are very influential. It is also evident that different selection procedures adopted in the identification of high-ability students will result in different groups of pupils being identified. Therefore, it is important when designing such identification procedures, to be clear as to the particular type of high-ability student sought.

FIGURE 3: MINIMUM AND MAXIMUM CASES WITH RESPECT TO AGREEMENT BETWEEN THE STUDENTS SELECTED BY THE DIFFERENT CRITERIA

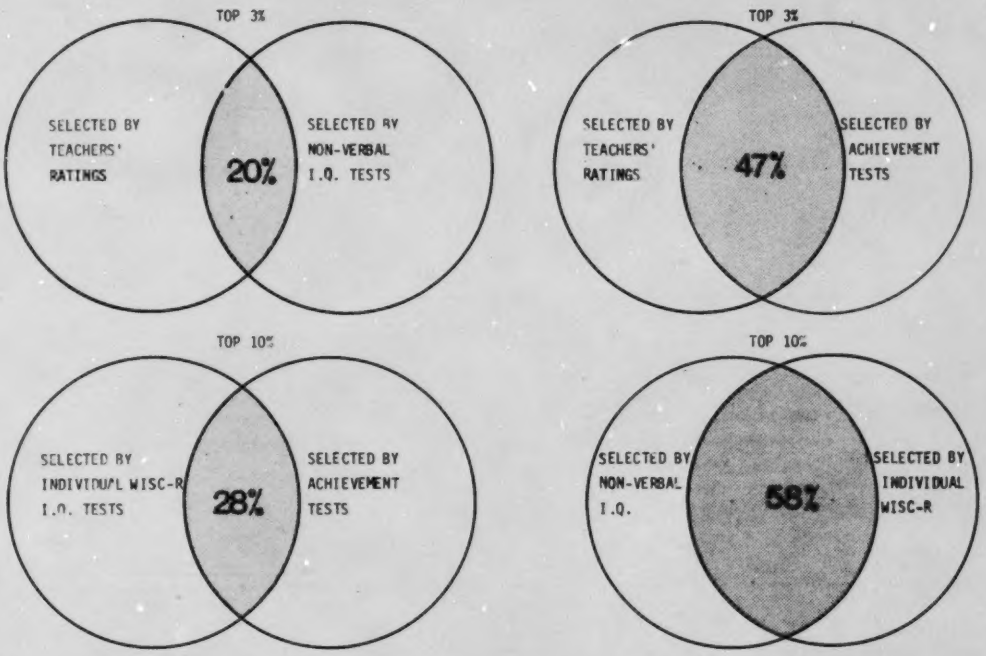

TABLE 7: STANDARDIZED TEST RESULTS COMPARED WITH TEACHERS' RATINGS OF ABILITY

TEACHERS' STRUCTURED RATING*	N	I.Q.MEANS	READING MEANS	ARITHMETIC MEANS
1 (Top rating)	6	121	90.3	79.4
2	4	130	96.8	83.2
3	14	127	82.9	80.8
4	10	126	74.0	68.2
5	7	124	76.4	63.9
6	15	119	69.2	66.3
MEANS FOR TOTAL POPULATION		100	51.05	50.37

When the test results were compared with teachers' structured ratings of ability (Table 7) those students rated most highly had I.Q. scores below the fifth ranked group. A similar pattern occurred with the other test results.

In view of the pattern of achievement of students in the very top group on the teachers' ratings of ability on Table 7, the project did not use these ratings in the selection of high-ability students. Three measures of ability were accepted - the combined reading test results, the combined mathematics test results and the combined non-verbal reasoning test results. The top students on each measure were selected.

* The table shows the first six of 25 ranks of the teachers' structured ratings. The remaining ranks followed the test results quite closely.

4: IDENTIFYING HIGH-ABILITY DISADVANTAGED STUDENTS

The preceding chapters dealt separately with the identification of disadvantaged and gifted students. The present chapter addresses the question of identifying students who are both high-ability and disadvantaged.

Table 8 sets out a simplified list of alternative notions of the high ability-disadvantaged student and shows identification procedures that are appropriate to particular concepts. The first three approaches are fairly simple to implement; however, they do not recognize the complexity of disadvantage. Also, the second approach is at odds with current concepts of the nature of ability. On the other hand, acceptance of multi-faceted concepts of ability and disadvantage, as adopted in this study, results in such a complex set of possibilities that the task of making generalized comments becomes extremely difficult.

This chapter illustrates four approaches to identification so that the characteristics of students identified by each approach may be seen. Information gathered during this process was used to refine student selection procedures for further stages of the project.

4.1 Identification Issues

The issues pertaining to measuring ability and identifying disadvantaged students take on special significance when the two concepts are juxtaposed in the endeavour to identify high-ability disadvantaged students.

The unsuitability of standardized tests for use with a culturally diverse population is questioned on several counts (Hilliard, 1979). For example, many such tests rely heavily on verbal ability to the extent that groups unfamiliar with the standard language are seen to be placed at a disadvantage.

It is also claimed that there are socio-economic group differences in motivation to the testing situation. If there are important group achievement differences then obviously the composition of the norming group, and the methods of taking these differences into consideration when developing the norms, will be critical to their interpretation with children from different cultural groups. Educational psychologists have attempted to overcome these problems by the use of the following:

Culture Fair Tests. Tests such as the Ravens Progressive Matrices, Cattell's Culture Fair, Jenkins Non-verbal and the Goodenough Draw-a-man aim to assess mental ability without relying on verbal ability. Whether they succeed or not is open to question (Karp and Sigel, 1965). Gallagher (1965) comments that such culture fair tests are poor indicators of ability because they simply avoid the linguistic complexity upon which much of performance in school is based.

TABLE 8: CONCEPTS OF HIGH-ABILITY DISADVANTAGED STUDENTS

CONCEPT	ASSUMPTIONS ABOUT DISADVANTAGE	ASSUMPTIONS ABOUT ABILITY	EXAMPLES OF IDENTIFICATION CRITERIA
1. High Achievers in Priority Schools	1. Ability not catered for 2. Lack of contact with able peers Locus of disadvantage: the school	1. Acceptance of a general intelligence factor 2. Ability is innate 3. Environment is not important	1. Attends a Priority School 2. Scores at a high level in several areas
2. High Ability Under-achievers	1. Ability unrecognised. 2. Disadvantage largely personal in origin 3. Disadvantage not related to socio-economic status Locus of disadvantage: the individual	1. Acceptance of general intelligence factor 2. Ability is largely innate 3. Environment is an important influence on achievement	1. Scores highly on non-verbal I.Q. tests 2. Scores poorly on mathematics and reading achievement tests
3. Highest Achievers within Ethnic Groups	1. Ability disguised by cultural factors 2. Disadvantage a product of ethnic values/language differences between home and school Locus of disadvantage: the school/culture mismatch	1. Ability is innate 2. Different cultural groups have different levels of performance	1. Is a member of a non-mainstream ethnic group 2. Scores at a high level for the ethnic group in Mathematics, Reading or I.Q.
4. High Achieving socio-economically disadvantaged students	1. Ability disguised by socio-economic status factors 2. Disadvantage a product of social class values/ language clash between home and school Locus of disadvantage: the home/school mismatch	1. Ability is partly innate 2. Environmental effects on performance are very important	1. Is rated as disadvantaged by the teacher in regard to family language, economic circumstances, family stability or parent education 2. Scores at a high level in at least one of the test areas

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Culture Specific Tests. The construction of culture specific tests by researchers such as Bruch (1971), Williams (1972), and Stallings (1975) is an attempt to remove item bias from standardized testing. Such tests may be most appropriate for comparing students within particular groups; however, they assume a degree of homogeneity among cultural group members that may not generally apply.

Learning Ability Tests. This approach, used by Budoff (1972) to identify able students, involves a pre-test, teaching and post-test measuring of the degree of mastery of particular skills or concepts. The children who made the most progress, or who mastered the skills more quickly, are identified as having higher ability. The process is individual and time consuming, such that it is unwieldy for research purposes involving large numbers of subjects.

Vygotsky's (1962) 'zone of potential development' - the difference between a child's actual performance on a standardized intelligence test and the degree of competence the child achieves after training - suggests another approach to assessing 'learning ability'. The zone is measured by the number of prompts a child needs to solve problems of various degrees of difficulty. This approach is presently being investigated by Feuerstein (1979) and Brown (1980).

Multiple Norming. Mercer et.al., (1977) have devised SOMPA (System of Multicultural Pluralistic Assessment) which is a method of using available standardized tests to estimate levels of ability within specific cultural groups. Students' results on a standardized test are normed for their particular group. Then, by applying a socio-cultural weighting in a regression analysis, the ability of individuals within the group are predicted and used to weight their final score. Although it is a sophisticated technique of some promise, it has not been widely accepted.

The difficulties and dangers of assessing socio-cultural weightings on appropriate criteria provide the main areas of debate over its appropriateness. For example, Rice (1979, p.34) maintains that:

> The quest for freedom from cultural bias has been proven as troublesome in intelligence testing as it has in civil rights. The major problem with the culture-free tests developed so far is how to evaluate their accuracy. Most have been measured against IQ scores, which completes an absurd circle, since no one has yet developed a culture-free IQ test ...
>
> In addition, by emphasizing potential rather than current ability, SOMPA may create unreasonably high expectations among parents and teachers, who must still contend with present reality. SOMPA could also leave children who really do need special educational help in classes where overburdened teachers will not be able to give them the attention they need. (Rice, 1979, p.34)

A pessimistic summary of the issues is given by Ebel (1979, p.18), viz:

> Awareness of the distorting influence of cultural differences on intelligence test scores led to attempts to construct culture-free tests. That proved to be impossible, because of the inescapable influence of learning and culture on test performance. The next suggestion was that the tests, if not culture-free, be made culture-fair. That is, the cultural factors affecting test performance should be equalized or balanced somehow across all of the cultures that might be tested. But so complex are these factors, and so varied and subtle are their influences that culture- fairness has proved equally elusive. Estimates of relative amounts of native intelligence among members of the same culture are uncertain enough. To make such estimates validly across different cultures is virtually impossible.

The concepts of high-ability disadvantaged students shown in Table 8 suggested the adoption of different notions of ability. These alternatives are considered in Section 4.3. Aspects of the results that illustrate the correlations between particular facets of disadvantage and school achievement are shown in 4.2

4.2 Student Achievement and Home Background

The information contained in this section was collected in order to examine relationships between the factors taken as indicative of disadvantage and school achievement.

4.2.1 The Standardized Tests and Teacher Ratings of Background

The correlations between teachers' ratings on the four dimensions of home background and test performance shown on Table 9 ranged from .15 to .38. The strongest relationships were between reading test results and both 'language spoken at home' and 'parents' educational background'.

TABLE 9: CORRELATIONS BETWEEN TEST RESULTS AND TEACHERS' RATINGS OF HOME BACKGROUND

	Language Spoken at home	Parents' Level of Education	Family Stability	Family Economic Circum-stance
Reading	.38	.38	.15	.18
Mathematics	.15	.25	.15	.15
I.Q.	.24	.33	.25	.29

The same pattern was shown by the comparison of test results and teachers' ratings of home background shown in Figures 4 and 5. According to the teachers' ratings of home background, reading ability was more highly correlated with home background factors than the other test results. However 'language spoken at home' and 'parents' educational background' were more highly correlated with the results than 'family economic circumstances' or 'family stability'.

The relative influence of the four factors of home background upon school performance has importance in designing identification procedures for 'disadvantaged' students. If these findings apply generally then other things being equal, priority should be given to students whose parents have little education and where the language background constitutes a disadvantage.

4.2.2 Teachers' Ratings of Ability and Their Ratings of Home Background

The comparison of teachers' ratings of home background with their ratings of ability produced similar findings to those discussed above. Educational background and language at home were more strongly correlated with teacher assessments of ability in language-oriented activities (such as oral and written comprehension) than arithmetic or general reasoning. For example, the correlation between educational background and oral comprehension was .42, whereas the correlation between family stability and oral comprehension was .17. The correlations between the home background ratings and the arithmetic ratings ranged from .13 to .27 (Table 10).

TABLE 10: CORRELATIONS BETWEEN TEACHERS' RATINGS OF SCHOOL ACHIEVEMENT AND THEIR RATINGS OF HOME BACKGROUND

	Language Spoken at home	Parents' Level of Education	Family Stability	Family Economic Circumstance
Oral Comprehension	.31	.42	.17	.21
Written Comprehension	.29	.41	.18	.22
Oral Expression	.34	.39	.15	.13
Written Expression	.28	.39	.21	20
Number Concepts	.20	.27	.14	.14
Problem Solving	.21	.27	.13	.13
Reasoning Ability	.26	.29	.10	.14
Imagination	.24	.31	.11	.13

These results further suggest that 'parents' educational background' and 'language spoken at home' are important components of educational disadvantage, and that performance in language is more likely to be influenced than arithmetic or I.Q.

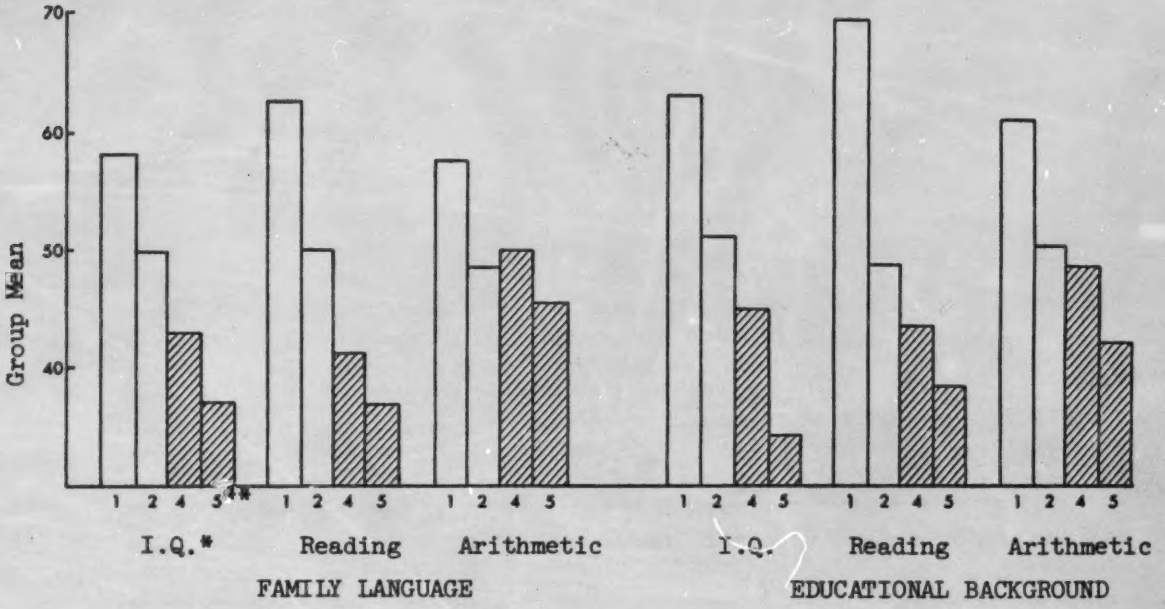


FIGURE 4: MEAN TEST RESULTS COMPARED WITH TEACHERS' RATINGS OF FAMILY LANGUAGE AND EDUCATIONAL BACKGROUND

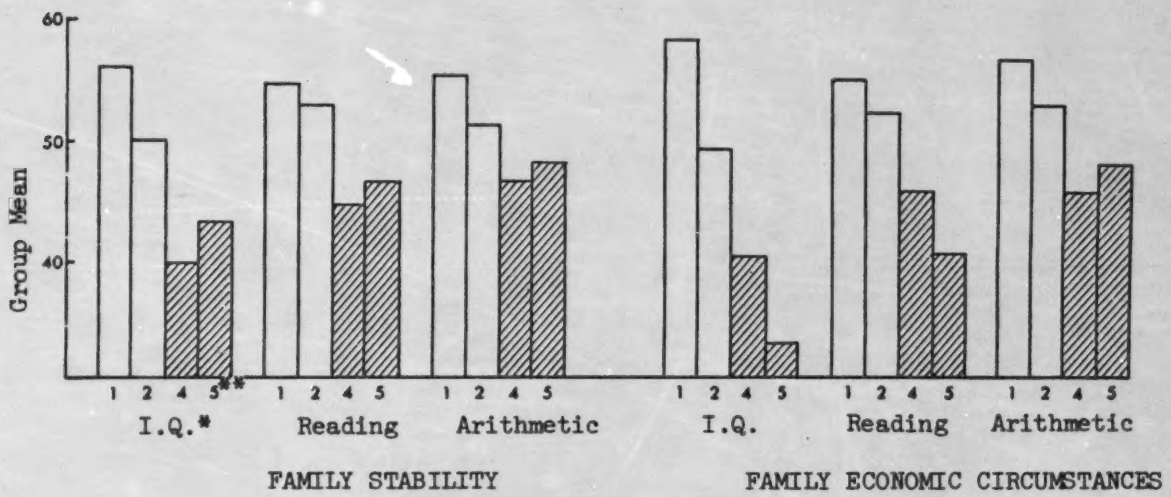


FIGURE 5: MEAN TEST RESULTS COMPARED WITH TEACHERS' RATINGS OF FAMILY STABILITY AND ECONOMIC CIRCUMSTANCES

* To facilitate comparison all scores (including I.Q.) have been scaled to a mean of fifty.

** Teachers' Ratings

1. Strongly Advantaged
2. Moderately Advantaged
3. Moderately Disadvantaged
5. Strongly Disadvantaged

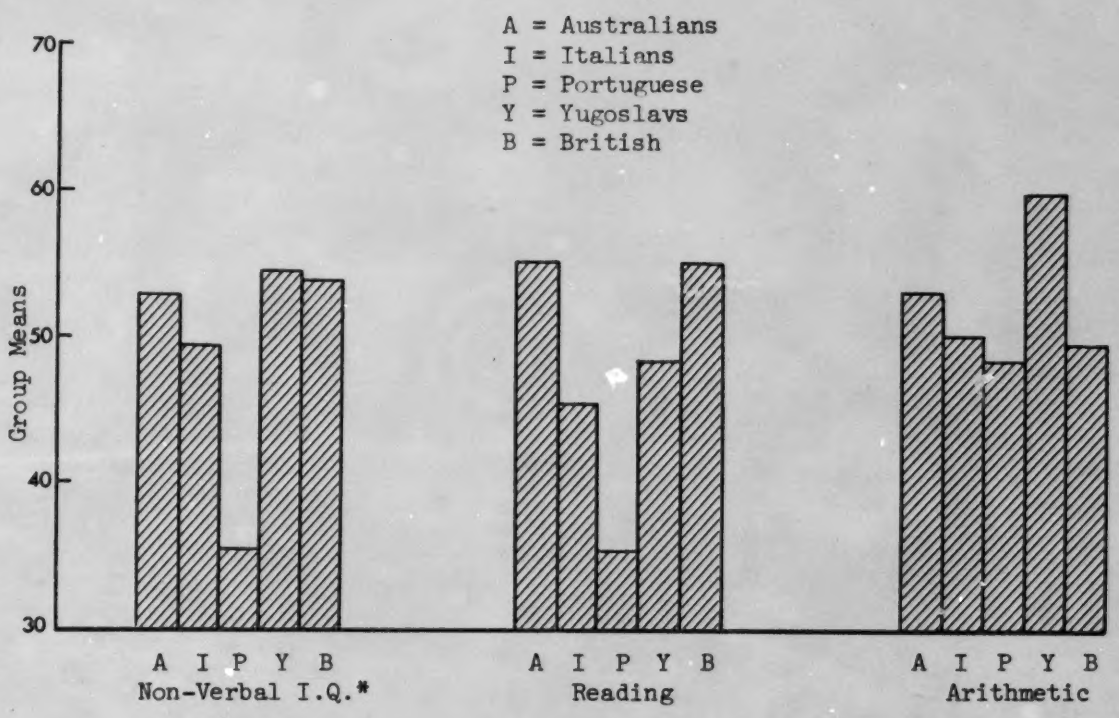
4.2.3 Ethnic Group and Test Performance

The disadvantages of not having an English-speaking home when learning to read are apparent from Figure 6 (derived from Appendix 5). However, the same pattern did not hold for the other results. The Yugoslav population scored as well as, or better than, the other groups on I.Q. and arithmetic.

In view of the expectation common in some ethnic groups that girls will leave school early, it is noteworthy that in all of the test areas, though the girls achieved more highly than the boys generally, the difference was much greater in the groups for whom English is not the native language. This is illustrated for the I.Q. test results by Figure 7; however, the same pattern applied to the other results shown in Appendix 5.

The link between language spoken at home and performance in reading is further suggested by Figure 8 (derived from Appendix 4).

Taken with the importance given to language factors in the teachers' ratings of home background, these results point to the need for a closer consideration of the nature of the language factor with regard to disadvantage in schooling.



* To facilitate comparisons all scores (including I.Q.) have been scaled to a mean of fifty.

FIGURE 6: MEAN TEST RESULTS OF THE MAJOR ETHNIC GROUPS

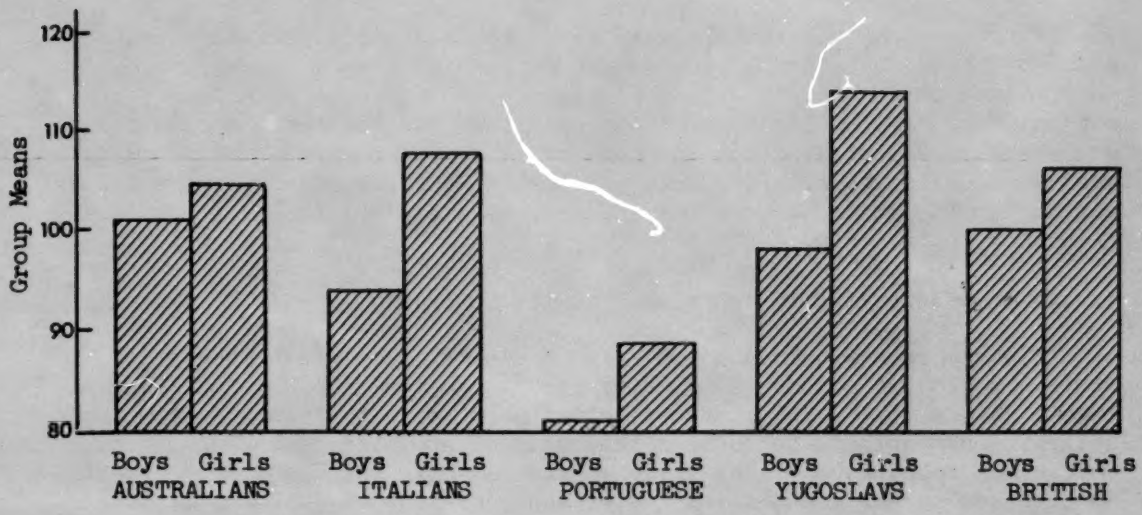
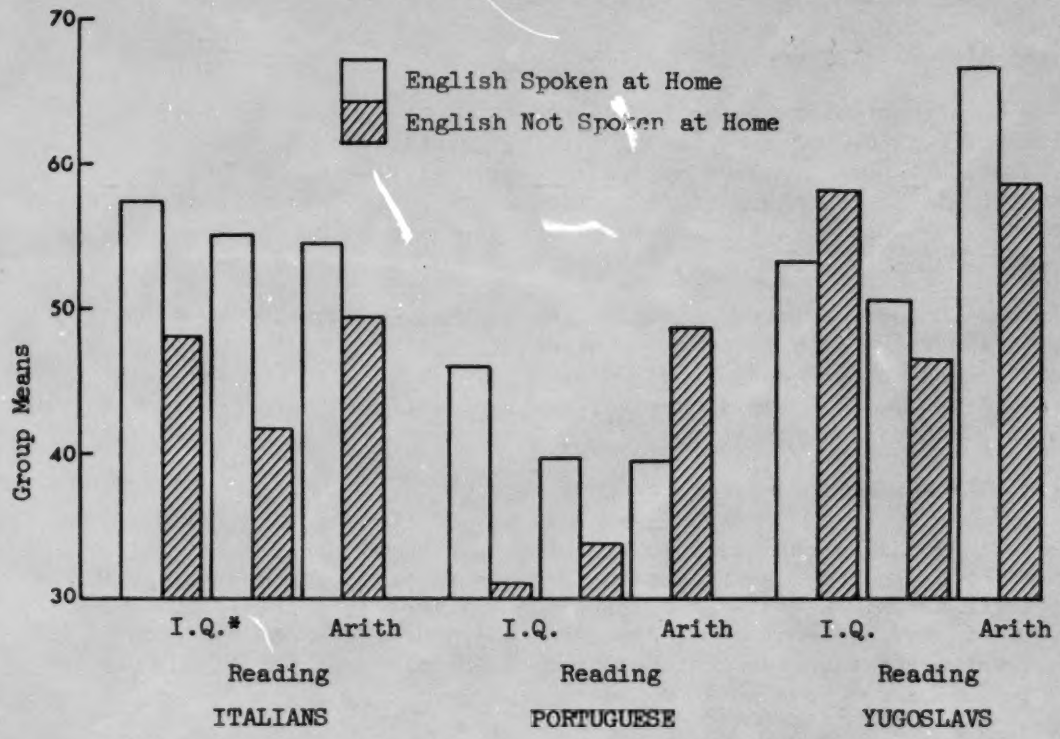


FIGURE 7: MEAN NON-VERBAL I.Q. TEST RESULTS OF THE MAJOR ETHNIC GROUPS



* To facilitate comparison all scores (including I.Q.) have been scaled to a mean of fifty.

FIGURE 8: MEAN TEST RESULTS COMPARED ACROSS ETHNIC GROUPS AND LANGUAGE SPOKEN AT HOME

4.3 Procedures Used to Identify High-Ability Disadvantaged Students

Using the four alternative notions of the high-ability disadvantaged student listed in Table 8, the teacher ratings of disadvantage, the information about student ethnic background and the test results on mathematics, reading and non-verbal reasoning, the following procedures were used to select students for further study. The purpose of identifying groups according to all four concepts of high-ability disadvantaged student was to permit comparisons of the educational implications of each selection procedure.

4.3.1 High-achieving Students in Priority Schools

This approach requires a two-step screening. The first screen is whether a student attends a priority school and the second is achievement level. Since all of the students tested were in priority schools* selection had only to be made on the basis of achievement. The selection criteria adopted were - a majority of scores above the eightieth percentile on the reading and mathematics tests, and scores above 125 on the two non-verbal I.Q. tests. (The I.Q. scores were regarded as achievement measures in non-verbal reasoning.)

Fifteen students were selected by this procedure.

4.3.2 High-ability Under-achievers

Within this category the I.Q. scores from the non-verbal reasoning tests are regarded as measures of ability whereas the reading and mathematics scores are seen as measures of achievement. The first screening is on the basis of IQ to identify high-ability students. The second screening looks for low-achieving students among the high-ability students.

Students were regarded as belonging in this category if they had I.Q. scores above 125 on both of the non-verbal reasoning tests and most of their scores on the reading and mathematics tests below the fiftieth percentile. Twenty-five students (five per cent) of the population tested had this pattern of results.

4.3.3 Highest Achievers within Ethnic Groups

Here 'ethnic group' is used to refer to non-mainstream national groups who might be regarded as educationally disadvantaged through having differing goals, language or culture (as outlined in Chapter 1). Within this category, the non-verbal reasoning tests are regarded as giving a relatively language-free measure of achievement.

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* It should be acknowledged that in a recent re-adjustment two of the selected schools were taken off the priority schools' list; however, they drew students from the same region and showed similar patterns of results so they have been included as priority schools here.

The first screen is to identify students from non-mainstream ethnic groups. The second screen is to locate the highest achieving students within each of these groups. For each of the major non-English speaking ethnic groups (Italian, Portuguese and Yugoslav) the students who achieved above 125 on the non-verbal reasoning tests and were the highest achievers in reading or mathematics were selected so as to get the top ten per cent of each group. This resulted in a group of 15 students.

4.3.4 High-achieving Socio-economically Disadvantaged Students

The initial screen for this procedure is the teachers' ratings of home background. The second screen is achievement. The I.Q. test scores are regarded as achievement measures in non-verbal reasoning.

From the group of students rated as having a disadvantaged background (n = 225), those with scores in the top ten per cent of the total population on either the arithmetic, reading, or non-verbal reasoning were selected. Sixty-one students were selected by this approach.

4.4 Results

In this section, achievement profiles of the different types of high-ability disadvantaged students are shown together with brief case study descriptions of ideal-typical students within each category*.

4.4.1 High-achieving Students in Priority Schools

A description of a typical example of this type of student is given by this summary produced after a series of classroom observations.

CASE 1.

Penny is eager to complete her work. She is alert to her teacher's every word and approaches her tasks seriously.

Her background is completely at variance with that expected of students in a 'Priority' school. Both parents are well-qualified professionals with lengthy tertiary education and the family's level of affluence is in sharp contrast to that of some of the girl's classmates. The occupancy of an old 'colonial' style home is part of what one teacher in the school describes as the 'return of the trendies'. This is a reference to the fact that several houses in the area have recently been purchased by quite affluent people who find the historical style and cosmopolitan nature of the district appealing.

Penny is an outstanding student. Her workbooks are fastidiously neat; her written expression is mature and sensitive; her grasp of mathematics and scientific concepts is advanced; and she excels in small group discussions in the advanced vocabulary group, where she manipulates the language with obvious enjoyment.

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* It will readily be apparent that there will be a large degree of overlap between the students selected for the last three groups.

The teacher regards Penny as one of his star pupils and regularly engages her in conversation.

TABLE 11
TEST RESULTS - PENNY

I.Q.	
Non-verbal (Ravens/Jenkins)	*130/135*
W.I.S.C. (R)	*140*
Reading	
Word Knowledge	*111**
Comprehension	*107**
Mathematics	
A.C.E.R. Arithmetic	*91**
A.C.E.R. AM4	*112**

** scores scaled to a mean of 50 and a standard deviation of 24*

Penny's academic success appears assured. One question that might be asked about her education is whether she is being helped to proceed at an appropriate pace. In spite of the recognition of her talents, teachers find it difficult to keep her fully extended by providing challenging material.

Examples of typical scores* for other pupils in this group are shown in Table 12.

TABLE 12: TYPICAL ACHIEVEMENT PROFILES FOR HIGH-ACHIEVING STUDENTS IN PRIORITY SCHOOLS

STUDENT NUMBER	DISAD-VANTAGED	CULTURAL GROUP	MATHS	READING	NON-VERBAL I.Q.	WISC-R PERFORMANCE	WISC-R VERBAL	WISC-R FULL SCALE
174	NO	BRITISH	89	124	130	115	122	121
177	NO	AUSTRALIAN	85	109	131	130	140	139
283	NO	AUSTRALIAN	88	121	132	123	131	130
516	NO	ITALIAN	94	102	133	126	133	133
GROUP MEAN			86.8	93.5	129	123.3	127.1	128.5
GROUP RANGE			80-97	56-124	125-133	112-141	113-140	119-141
MEAN FOR TOTAL POPULATION			50	50	100	100	100	100
NO. IN GROUP = 15								

* For Tables 12, 15, 16 and 18, four students - other than the case study subject - have been selected in order to show achievement patterns within each group. The students selected are those whose results most clearly reflect the concept underlying the particular group.

4.4.2 High-ability Under-achievers

CASE 2.

Nonie's father is a skilled tradesman and her mother works in an office. Both parents work long hours, and the amount of time they spend with Nonie is very limited. This is especially so because both parents work shifts and overtime during some week-ends.

Nonie reads a great deal, and watches T.V. even while doing her homework. Her parents perceive her as lacking incentive, noting that she will take up a new hobby enthusiastically, only to become bored and to discard it when hard work and/or persistence are needed.

In the classroom she lacks concentration and application and appears to have poorly developed self-organization and study skills. Her I.Q. scores, which are consistently above 130, are not reflected in her classroom results. In mathematics she is unable to set out, or answer, quite simple exercises from the year four level of the syllabus.

Nonie has well-developed work-avoidance habits, seldom staying in her seat for more than a few minutes at a time and has been observed to wander unobtrusively around the classroom for ten minutes.

She is reading more advanced material than most of her classmates. In the art class, the specialist teacher (whom she seems particularly keen to please) has 'leaned on' her until she produces careful and detailed artwork.

TABLE 13
TEST RESULTS - NONIE

I.Q.	
Non-verbal (Ravens/Jenkins)	*130/135*
W.I.S.C. (R)	*135*
Reading	
Word Knowledge	*102**
Comprehension	*100**
Mathematics	
A.C.E.R. Arithmetic	*35**
A.C.E.R. AM4	*49**

** scores scaled to a mean of 50 and a standard deviation of 24*

Nonie is rated 'good average' by the teacher, yet on one of the intelligence tests she had the highest score of the 527 children tested. She scored six points beyond the number required for her age for the '135 plus' category.

An attitude scale indicated that compared with her peers, her attitude to school is ambivalent and her self-concept is extremely low. She is aware of having difficulty with mathematics. Her way of coping with mathematics seems to be through avoidance. It is surprising that she is quite uninterested in the sorts of puzzles at which she has demonstrated such high ability.

CASE 3.

Bill is the youngest in a family with four sons. His parents migrated to Australia from Britain seven years ago. They had less than seven years' formal education and have suffered long periods of unemployment and economic hardship.

The parents have not perceived in Bill any signs of academic or other particular talents. The fact that he presents an image of passive, stolid detachment and that his movements appear ponderous and uncertain may help explain the generally low esteem in which he is held. He was considered to be a slow reader in his early years at primary school, to the extent that he was placed in a remedial reading class.

While his parents appear to be convinced of the importance of 'schooling' as a general principle, they voice strong antipathy to several traditional school practices - most notably that of homework. Their view is that schoolwork belongs at school and they consider it unnecessary to provide support for any such endeavour at home.

TABLE 14
TEST RESULTS - BILL

I.Q.	
Non-verbal (Ravens/Jenkins)	124/125
W.I.S.C. (R)	126
Reading	
Word Knowledge	37*
Comprehension	65*
Mathematics	
A.C.E.R. Arithmetic	22*
A.C.E.R. AM4	25*

* scores scaled to a mean of 50 and a standard deviation of 24

Bill's reading and mathematics results confirmed the teacher's estimation of his achievement levels. Judged by the pattern of his past performance there appears little likelihood that Bill will enjoy a successful school career in the future. Both his family's and the school's appraisals may have helped him into an acceptance of educational inferiority.

Approximately half of the students in this category were classified by the teacher as disadvantaged. Tables 15 and 16 show typical score profiles for students in these sub-groups.

It is noteworthy that the I.Q. results on the WISC-R test (administered individually by a guidance officer) differed considerably from the non-verbal group-administered test with these students, but not with the previous group. (This matter will be addressed in more detail in a subsequent report.)

TABLE 15: TYPICAL ACHIEVEMENT PROFILES FOR HIGH ABILITY-UNDERACHIEVING STUDENTS NOT RATED AS DISADVANTAGED

STUDENT NUMBER	DISAD-VANTAGED	CULTURAL GROUP	MATHS	READING	NON-VERBAL I.Q.	WISC-R PERFORMANCE	WISC-R VERBAL	WISC-R FULL-SCALE
012	NO	AUSTRALIAN	46	82	128	111	115	115
134	NO	BRITISH	38	101	135	142	120	135
141	NO	AUSTRALIAN	51	89	132	126	133	133
542	NO	AUSTRALIAN	16	13	125	123	79	98
GROUP MEAN			45.1	58.4	128.9	115.3	109.3	113.5
GROUP RANGE			16-66	7-101	126-132	95-132	79-133	96-135
MEAN FOR TOTAL POPULATION			50	50	100	100	100	100

NO. IN GROUP = 12

TABLE 16: TYPICAL ACHIEVEMENT PROFILES FOR HIGH ABILITY-UNDERACHIEVING STUDENTS RATED AS DISADVANTAGED

STUDENT NUMBER	DISAD-VANTAGED	CULTURAL GROUP	MATHS	READING	NON-VERBAL I.Q.	WISC-R PERFORMANCE	WISC-R VERBAL	WISC-R FULL-SCALE
108	YES	BRITISH	20	51	125	139	108	126
005	YES	PORTUGUESE	61	47	126	93	95	93
701	YES	YUGOSLAV	69	48	129	135	105	121
688	YES	YUGOSLAV	62	62	130	124	128	129
GROUP MEAN			45.2	58.3	127.6	117.2	108.8	114.2
GROUP RANGE			20-69	39-82	125-132	93-139	95-128	93-129
MEAN FOR TOTAL POPULATION			50	50	100	100	100	100

NO. IN GROUP = 13

4.4.3 Highest Achievers within Ethnic Groups

A typical pupil from this group is described below.

CASE 4.

Zelko is the eldest child in a Yugoslav home where English is seldom used. He is a lively, friendly youngster, excelling at sport; a child with wide-ranging general knowledge, a quick sense of humour and a deep concentration during maths and any other subject which interests him.

The parents recognize that Zelko learns very quckly - he learned English within a few months of his arrival in the country. He now acts as family interpreter, and this forces him into many adult situations. Perhaps this has contributed to his developing confidence and maturity, to a degree that is unusual for his age.

Neither parent has had more than seven years' education, and so both their language and educational inexperience prevent them from assisting him with difficult homework. The boy shows mechanical dexterity by constantly tinkering with his bike. His parents are keen for him to train as a mechanic.

Zelko has a hobby which is unusual among his peers. He reconstructs ancient battles with toy soldiers. To do so he will immerse himself in history books (some at a secondary level) and study the times and the personal traits of those involved in particular battles. His general knowledge is wide-ranging and he is fluent when discussing familiar topics. Yet in the reading tests administered, his scores are barely above average. Furthermore, although mathematics is considered by both Zelko and his teachers to be his best subject, some of his arithmetic scores on the tests administered did not reflect this.

TABLE 17
TEST RESULTS - ZELKO

I.Q.	
Non-verbal (Ravens/Jenkins)	*125/132*
W.I.S.C. (R)	*129*
Reading	
Word Knowledge	*54**
Comprehension	*69**
Mathematics	
A.C.E.R. Arithmetic	*58**
A.C.E.R. AM4	*80**

** scores scaled to a mean of 50 and a standard deviation of 24*

On attitude-rating scales, given to all of the students who scored highly on the non-verbal I.Q. tests, Zelko indicated an extremely high self-concept in conjunction with an extremely low opinion of school in comparison to the other students. These results are not indicators of likely success at school. Nevertheless Zelko is willing to apply himself diligently to activities that capture his interest.

Examples of typical scores for students in this group are given in Table 18.

TABLE 18: TYPICAL ACHIEVEMENT PROFILES FOR THE HIGHEST ACHIEVING STUDENTS WITHIN THE MAIN ETHNIC GROUPS

STUDENT NUMBER	DISAD-VANTAGED	CULTURAL GROUP	MATHS	READING	NON-VERBAL I.Q.	WISC-R PERFORMANCE	WISC-R VERBAL	WISC-R FULL-SCALE
516	NO	ITALIAN	94	102	133	126	133	133
451	NO	YUGOSLAV	85	89	129	123	119	121
379	YES	PORTUGUESE	82	82	126	114	98	105
GROUP MEAN			82.6	69.5	125.4	113.4	109.8	112.2
GROUP RANGE			61-97	43-104	95-133	93-126	95-136	93-133
MEAN FOR TOTAL POPULATION			50	50	100	100	100	100

NO. IN GROUP = 15

4.4.4 High-achieving Socio-economically Disadvantaged Students

A typical pupil from this group is described below.

CASE 5.

Rodney, a Croatian-Australian boy has experienced high levels of family instability and economic hardship over most of his life. His stepfather was a labourer but is now an invalid and his mother works as a domestic aide to support the family. At the beginning of the year he was perceived by the school as being of average-to-above-average ability generally. The teacher considered that he was weak in language skills. He scored well below the average of those tested on word knowledge, however his comprehension score was quite sound. Rodney and his teachers believe that mathematics is his best area; however, like Zelko, this was not reflected in his test results.

In class he is easily distracted, especially during lessons with a language orientation. He has strongly developed work-avoidance habits, and can day-dream while appearing busy, so that his teacher is unaware of his inattention. Another of his skills is to distract the children in his group, causing them to misbehave and to incur the teacher's wrath, while he 'innocently' reads or writes on.

There is a touch of a cartoonist's drawing skill and sense of humour in his workbook illustrations. His class diary is peppered with comments about dinosaurs, model planes and scientific experiments.

He talks (when asked) of the encyclopaediae he reads at home, and of the transistor radio he pulled apart and reassembled. Rodney's ambition is to be a wrestler.

Rodney would probably not be recognized by a busy teacher as likely to score highly on an I.Q. test. He appears to have learned to hide in the classroom and to complete as little work as he can get away with. The mathematics results may be more an expression of attitude to the test than true ability. Attitude-scale results suggested that in comparison with his classmates, his self-concept is extremely low, and he has a very poor opinion of school.

TABLE 19
TEST RESULTS - RODNEY

I.Q.	
Non-verbal (Ravens/Jenkins)	*130/135*
W.I.S.C. (R)	*125*
Reading	
Word Knowledge	*35**
Comprehension	*73**
Mathematics	
A.C.E.R. Arithmetic	*26**
A.C.E.R. AM4	*57**

** scores scaled to a mean of 50 and a standard deviation of 24*

Since students were selected for this group if they had high achievement in even one of the areas tested, the resultant group varied widely in achievement in each of the three areas. Typical patterns of results for students in this groups profiles are shown in Table 20.*

TABLE 20: TYPICAL ACHIEVEMENT PROFILES FOR HIGH-ACHIEVING SOCIO-ECONOMICALLY DISADVANTAGED STUDENTS

STUDENT NUMBER	DISAD-VANTAGED	CULTURAL GROUP	MATHS	READING	NON-VERBAL I.Q.	WISC-R PERFORMANCE	WISC-R VERBAL	WISC-R FULL-SCALE
623	YES	BRITISH	82	62	128	130	125	131
285	YES	AUSTRALIAN	69	53	-	114	120	120
701	YES	YUGOSLAV	69	48	129	135	105	121
589	YES	ITALIAN	66	53	130	130	102	117
GROUP MEAN			66.3	56.6	124.3	121.9	110.2	120
GROUP RANGE			20-106	18-110	108-133	93-142	95-128	93-141
MEAN FOR TOTAL POPULATION			50	50	100	100	100	100

NO. IN GROUP = 61

* The problems caused by accepting students who achieved at a high level on the non-verbal I.Q. tests only are noted in the final chapter.

5: IMPLICATIONS OF THE RESULTS FOR IDENTIFYING HIGH-ABILITY DISADVANTAGED STUDENTS

Both the individually administered WISC-R and the achievement test results confirm that there are substantial numbers of high-ability students in schools in disadvantaged areas. Identifying highly able pupils led in some instances to a change of perspective of teachers in the schools involved. For some teachers the identification process merely confirmed what they had suspected for some time. For others, however, the initial uncertainty or even puzzlement over the concept of high-ability children being held back by environmental circumstances was replaced by ready support for special provisions for such students.

The above results have important implications that do not apply only to schools in disadvantaged areas. Their importance lies in the reminder for teachers and administrators to expect wide diversity of abilities in any group of children. In addition to their relevance to school personnel, the conceptual analysis and suggested identification procedures should be of interest to central and regional programmes for high ability students. The implications of positions advanced earlier are summarized here in order to propose practical procedures for the identification of high-ability disadvantaged students.

5.1 Alternative Concepts of High-ability Disadvantaged Students

The wide diversity of home backgrounds among students in priority schools makes it simplistic to regard all students attending such schools as socio-economically disadvantaged. Some of the very high-achieving students may be candidates for special provisions for gifted students. Of the 15 students identified in this category only one was rated as socio-economically disadvantaged by the teachers. Nevertheless, recognition of the existence of such high-ability students in priority schools is important as they are almost certain to be capable of faster rates of progress than the majority of the students.

Classifying students by their ethnic group shares a similar problem. To regard all of the students from the three major ethnic groups as educationally disadvantaged is clearly untenable. The Italian girls on average scored higher on all of the tests than the Australian and British girls. Many of the Italian and Yugoslav families were affluent, spoke only English and had a high interest in education, especially for the boys. To choose between ethnic groups or between students within a particular group would require an approach similar to that adopted by Mercer (1977) or to that recommended for identifying disadvantaged students in Chapter 2.

The high-ability underachiever approach has appeal because it appears to offer a form of identification independent of subjective judgement. The notion of obtaining an indication of ability that is relatively free from the influence of language factors yet which is a useful predictor of school achievement is appealing. However, the approach requires accepting a general factor notion of ability that is not supported by current theories of intelligence. In addition, the results show the two non-verbal I.Q. tests to correlate with language background, in much the same manner as the reading and mathematics tests.

There is something disturbing about finding students able to score consistently highly on non-verbal reasoning tests but consistently failing in mathematics and reading. Nevertheless the fact that only half of these students were rated as coming from a socio-economically disadvantaged background must throw doubt upon the appropriateness of this procedure as an approach for identifying high-ability disadvantaged children. Many of these students came from well-educated and affluent families.

In view of the purpose of the identification, the approach of first identifying disadvantaged students has obvious plausibility for either school or system level programmes. Questions of the accuracy of teachers' ratings, priorities among those identified as disadvantaged and appropriate criteria for assessing achievements are addressed below.

5.2 Alternative Criteria for Assessing Disadvantage and Ability

There are advantages in keeping separate the four facets of disadvantage outlined in Chapter 2. Their differing correlation with school performance makes relevant the question of their comparative importance and whether there are other factors that should have been considered.*

The approach of combining scores on disadvantage ratings to arrive at a composite score is shown by the study to be unlikely to identify the students with extreme disadvantage on only one factor. Students with moderate disadvantage in several areas may be given preference. The procedure of exercising judgement to select the most deserving must be preferred to a superficially fair formula.

Similar arguments apply to criteria for assessing ability. Multiple facets should be recognized. While a few gifted students will demonstrate high ability in a number of areas, students who have very high ability on one measure should be given special consideration.

It is vital for those initiating programmes to be clear about the aspects of ability to be selected. Programmes that attempt to cater for students who have different areas of high ability will have wide ranges of ability to provide for in particular areas and will consequently have a diffusion of effort in preparation.

5.3 Alternative Measures of the Selection Criteria

Even when used as an initial screen to identify the top 10 per cent of students for further testing the Ravens and the Jenkins tests appear to have important shortcomings for students of this age level. Apart from the obsolescent norms, and the fact that the tests did not discriminate sufficiently between students at the very top end of the ability range, the performance of non-English speaking ethnic groups suggests that the 'culture fairness' of both tests is open to question.

However, if for some reason a non-verbal reasoning test is to be used, experience with administering both tests suggests that the Ravens test overcame the problem of student motivation to testing. The children seemed genuinely to enjoy doing it. In addition, having a separate answer sheet, it is much more quickly marked.

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* The data from this study throws doubt on the appropriateness of methods that treat such factors as equally important in the selection of priority schools.

While it has been stated above that the non-verbal reasoning tests did not appear to give results that were free from the influence of language factors, the reading results show that tests with a heavy language component would be especially unsuitable for disadvantaged students, particularly those from backgrounds where English is rarely spoken in the home. Attempts to ascertain potential ability should be avoided in favour of ratings or tests of achievement in the particular abilities accepted as the focus of the project.

While the teachers' assessments of disadvantaging factors were useful functional judgements of the impact of background factors on classroom performance, the judgements inevitably reflect their own specific perceptions of what was being sought. Unless guidance is provided for teachers in the form of criteria on which to base their judgements, they may overlook important background features. In this study the considerable amount of preparation and discussion of aspects of 'disadvantage' conducted with the teachers was considered to be essential to the gathering of useful data.

One of the valuable 'personnel' resources in collecting data about home backgrounds was the teacher who had been at a school for a considerable time. In each of the schools in the PrESS study such people were located. Their knowledge of students' family circumstances proved to be a valuable cross-check to the views of particular students' present teachers.

The use of teacher judgements in the identification process remains problematic. As an additional piece of information to be taken into account when selecting students, teachers' ratings of ability are clearly useful. However, since they differ markedly from standardized test results -particularly in their ranking of the top ability groups - tough decisions need to be made about which information will be given most credence. At the school-project level, where the child's school history is likely to be well known, teacher ratings might be given more weight than standardized test results, however, cases in which the two data sources differ significantly will be contentious. Large scale, inter-school projects will require a testing programme for reasons of objectivity and standardization.

5.4 Suggestions for Identifying High-achieving Disadvantaged Students

Logically, the first procedure is to identify students reasonably regarded as disadvantaged. Even within highly disadvantaged areas there is a wide range of cultural and socio-economic backgrounds. It is also important to recognize that ethnic groups will have different strengths and interests and that the range of socio-economic status within such groups is often diverse. Attempts to identify disadvantaged students may benefit from a concentration on the factors 'language spoken at home' and 'level of education of parents' as these factors correlated more strongly with school achievement.

Before obtaining teachers' ratings of home background it will be important to agree on the concepts and criteria to be used. The check-list shown in Appendix 2 might be useful in illustrating an attempt to encourage teachers to rate the students on similar aspects of disadvantage.

The initial screening ought to be applied to the whole of the school's population (at least for the Year-levels under consideration). Excluding classes or groups, because they were considered the 'lower stream', may result in missing some of the children sought.

Of the identification procedures outlined above, the most appropriate in view of the results discussed, is to select from the group of students classified as disadvantaged, those who are at, or near, the top achievement level for their grade in one or more areas. Whether one chooses those in the top five, ten or fifteen per cent achievement level will of course depend upon the purpose of the identification and the available resources.

Special consideration should be given to students who are just below the cut-off point but who have multiple areas of disadvantage, and those with a very high rating of disadvantage on one dimension. Such decisions should be made on the basis of a maximum of background information and consultation with teachers who know the student well. It is not likely that there will be any simple basis for deciding between students in borderline cases. Each decision will need to be addressed individually on the basis of all that is known about each child and hard decisions will have to be made to accept one student rather than another.

The task of making appropriate curriculum provisions will be made more practical if the students are selected on the basis of high achievement in the same area; however, to select only students who were highly able mathematically (for example) would be to recognize only one group of the high-ability disadvantaged students.* This is a dilemma that should be resolved on the basis of the resources available to the programme.

5.5 Further Stages of the Project

In order to reflect upon the educational implications of alternative concepts of the high-ability disadvantaged student and to develop further information about appropriate identification procedures, the next stage of the project involved gathering more detailed information about the students selected by each of the approaches. The methods used were parent interview, classroom observation, student self-esteem and attitude to school inventories, and working with the students in small group activities. The results of these procedures will be reported in due course.

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* Students who achieve at a high level on non-verbal I.Q. tests but at low levels in most other areas present special problems. Decisions about appropriate programmes for such students hinge upon the concept of ability taken to underlie the test. Such students may not fit readily into projects designed for students with high ability in traditional school subjects.

Implications for Action

Giftedness is an elusive concept. It is especially difficult to recognize and measure. Yet, teachers and school authorities are being encouraged to do just that. There are several key findings being made in this report which have relevance at both school and system level to the identification of gifted children.

The first is that depending upon the operational definition of giftedness different children will be netted in the particular talent search. Hence, it is all important to make explicit and argue the appropriateness of the assumptions which underpin provision for gifted children. These assumptions ultimately determine which children receive special provision and which children do not.

The second finding is that non-verbal IQ tests have very definite shortcomings when used to identify gifted chidren. The assertion is well substantiated in the literature, yet, individual and group administered IQ tests - including non-verbal tests - continue as the backbone of most screening strategms adopted for gifted childrens' programmes. The administration of IQ tests and the interpretation of their results must be undertaken with great caution.

The third finding relates to the notion of disadvantage. Many exceptionally able children manage to overcome social and economic disadvantage; however many others do not. It is important that children from such backgrounds are not doubly disadvantaged by schooling which produces expectations of achievement based on social origins.

Considerable success has already been achieved in arranging special experiences for disadvantaged students who are weak academically. The high-ability disadvantaged student may be less easily identified and may have more demanding needs; however they represent potential leadership and other vital forces within disadvantaged sectors of the community. This paper will serve an important function if it encourages education systems and individual schools to reconsider the means by which they assess student ability and cater for ability differences, in order to determine whether appropriate recognition is given to high-ability students from disadvantaged backgrounds.

This report has highlighted the extent to which the selection criteria will determine the types of children that will be identified, and has emphasised the importance of clarity of purpose in project design for the preparation of an appropriate programme. Difficult choices in reaching these decisions will have to be made prior to the implementation of any special programme. The conceptual clarification and procedures suggested earlier in this chapter are intended to help resolve some of the decisions.

References

BROWN, A. L., 'The Zone of Potential Development: Implications for Intelligence Testing in the Year 2000', Intelligence, Vol. 3, No. 3, July-September, 1979, pp.255-73.

BRUCH, C. B., 'Modification of Procedures for Identification of the Disadvantaged Gifted', The Gifted Child Quarterly, Winter, 1971, pp.207-272.

BUDOFF, M., 'Measuring Learning Potential: An Alternative to the Traditional Intelligence Test', Studies in Learning Potential, Vol. 3, No. 39, 1972, pp.24-31

COLEMAN, J. S., (ed.) Equality of Educational Opportunity, Washington D. C.: M.S. Government Printing Office, 1966.

EBEL, R. L., 'Intelligence: A Skeptical View', Journal of Research and Development in Education, Vol. 12, No. 2, 1979, pp.14-21.

FEUERSTEIN, R., The Dynamic Assessment of Retarded Performers, Baltimore: University Park Press, 1979.

FRIERSON, E. C., 'Upper and Lower Status Gifted Children: A Study of Differences', Exceptional Children, Vol.32, No. 2, October 1965, pp.83-90.

GALLAGHER, J., (ed), Teaching Gifted Students, Boston: Allyn and Bacon, 1965.

GEAR, G. H., 'Accuracy of Teacher Judgment in Identifying Intellectually Gifted Children: A Review of the Literature', The Gifted Child Quarterly, Winter, 1976, Vol. XX, No. 4, pp.478-489.

GETZELS, J. W., and JACKSON, P. W., Creativity and Intelligence, New York: Wiley, 1962.

GLASS, D. V., (ed), Social Mobility in Britain, London: Routledge, 1954.

GOLDBERG, M., Issues in Gifted/Talented Education in the United States and Australian Contexts, Canberra: Schools Commission, 1981.

HALSEY, A. H., (ed), Educational Priority, Vol. 1, London: H.M.S.O. 1972.

HILLIARD, A. G., 'Standardisation and Cultural Bias as Impediments to the Scientific Study of Intelligence', Journal of Research and Development in Education, Vol. 12, No. 2, 1979, pp.48-58.

KARP, J. M., and SIGEL, I., 'Psycho-educational Appraisal of Disadvantaged Children', Review of Educational Research: Vol. XXV, No. 5, 1965, pp.401-412.

LESSER, G. S., FIFER, B., and CLARK, D. H., 'Mental Abilities of Children from Different Social-class and Cultural Groups', Monographs of the Society for Research in Child Development, Vol. 30, No. 4, 1965.

LESSER, G. S., 'Cultural Differences in Learning and Thinking Styles', Individuality in Learning, S. Messick, (ed)., San Franscisco: Jossey Bass, 1976, pp.137-160.

MARJORIBANKS, K., 'Ethnic and Environmental Influences on Mental Abilities', Americal Journal of Sociology, Vol. 78 No. 2, 1972, pp.323-337.

MARJORIBANKS, K., 'Ethclass, the Achievement Syndrome and Children's Cognitive Performance', Journal of Educational Research, July-August, 1979, pp.327-333.

MERCER, J., and YSSELDYKE, J., 'Designing Diagnostic Intervention Programs', Psychological Assessment of Minority Children, T. Oakland, (ed)., New York: Brunner/Masel, 1977, pp.70-90.

MOSSENSON, D., Legitimizing Provision For Gifted Children: An Australian Perspective, Perth: Education Department of Western Australia, 1981.

NEWLAND, T. E., 'A Critique of Research on the Gifted," Exceptional Children, Vol. 29, No. 8, April 1963, pp.391-398.

PASSOW, A. H., 'The Gifted and The Disadvantaged', The National Elementary Principal, Vol. 51, No. 5, February, 1972, pp.24-31.

RADFORD, W. C., School Leavers in Australia, 1959-1960, Melbourne: A.C.E.R., 1962.

RICE, B., 'Brave New World of Intelligence Testing', Psychology Today, September, 1979, pp.27-41.

SMILANSKY, M., and NEVO, D., 'A Logitudinal Study of the Gifted Disadvantaged,' The Educational Forum, March, 1975, pp.273-294.

SMILANSKY, M., and NEVO, D., The Gifted Disadvantaged, London: Gordon and Breach, 1979.

STALLINGS, C., 'Gifted Disadvantaged Children', The First National Conference on The Disadvantaged Gifted, E. J. Fitzgerald, (ed), Ventura: Ventura Country, 1975.

STODOLOSKY, S. S., LESSER, G., 'Learning Patterns in the Disadvantaged', Harvard Educational Review, Vol. 37, 1967, pp.546-591.

THORNDIKE, R. L., The Concepts of Over and Underachievement, New York: Teachers College Columbia University, 1963.

VYGOTSKY, L. S., Thought and Language, Cambridge Massachusetts: M.I.T. Press, 1962.

VERNON, P.E., 'Intelligence Testing and the Nature/Nurture Debate, 1928-1978: What Next?, British Journal of Educational Psychology', Vol. 49, 1979, pp.1-14.

WILLIAMS, R., The BITCH-100: 'A culture specific test', Paper presented at the 80th Annual Convention of the American Psychological Association, Honolulu: 1972.

APPENDIX 1: CALCULATION OF SOCIO-ECONOMIC STATUS FOR THE PRIORITY SCHOOLS PROGRAMME*

In order to obtain a quantitative picture of a school it is often useful to measure the socio-economic level (S.E.L.) of the students who attend.

A commonly used index of the S.E.L. of the student is the occupation of the father.

The most useful Australian scale is the following one developed by Broom, Jones and Zubrycki (1965). It is linked to the Index of Occupations of the Commonwealth Bureau of Census and Statistics.

Scale Value	Occupation
6	Professionals, e.g. Doctors, engineers, teachers, accountants, graziers, wheat and sheep farmers.
5	Managers, inspectors, and self-employed proprietors, other farmers, e.g. fruit, dairy, mixed.
4	Clerical workers, e.g. clerks, salesmen, postal officers, public servants.
3	Craftsmen and foremen, e.g. mechanics, electricians, carpenters.
2	Shop assistants, process workers, e.g. factors and production workers, machinery operators.
1	Personal, domestic and service workers, e.g. gardeners, cleaners, barbers, miners, farm workers, labourers.
0	Inadequately defined. Home dutues.

A S.E.L. profile of a school may be obtained by drawing a random sample of student record cards and coding the occupation of the father of each of these students.

A sample of about 100 students would usually be adequate to describe a school. If exactly 100 occupations were coded, the numbers in each code category may be regarded as a percentage without further calculations.

To obtain 100 sample students from a primary school draw 14/15 students from each of the seven grades. For a secondary school, draw 33/34 students from the first three forms only since beyond this level schooling is not compulsory and the S.E.L. profile normally changes.

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* Illustrative material distributed by the Priority Schools Programme.

A suggested pattern for the recording of the survey is

Scale Value	6	5	4	3	2	1	0
Percentage	10%	25%	14%	17%	18%	13%	3%

It is possible to convert the profile to a single figure by calculating the weighted average, using the scale values for weighting. For the above school, the weighted average is given thus:

$$\frac{(6 \times 10\%) + (5 \times 25\%) + \text{etc.}}{100} = \frac{341}{100} = \text{approx. } 3.4$$

Therefore S.E.L. = 3.4

APPENDIX 2: TEACHERS' RATING SCALE ON STUDENT HOME BACKGROUND AND ABILITY

Priority Exceptional Students' Study
(Pr.E.S.S.)

Teachers' Structured Assessment
of Ability and Background

Research Branch
1980
Education Department of Western Australia

EXPLANATION OF ASPECTS OF HOME BACKGROUNDS

The following explanations are provided to assist in making clear what we mean by each of the terms related to home background.

1. LANGUAGE BACKGROUND

In some homes the pattern of language that is used (or the language itself) is different from that expected in the school. In other cases there is a close and helpful match between the language of the home and that of the school. Please indicate how the home language influences the students' school achievement.

2. ECONOMIC BACKGROUND

Where a family is undergoing economic hardship, it may be that the children cannot be provided with the range of educational resources or experiences which may assist achievement at school. More fortunate children may enjoy not only the material benefits to assist their educational development but they may also be less vulnerable to the emotional strain people may suffer as a consequence of economic stringency. Please indicate how family economic circumstances influence students' achievement.

3. EDUCATIONAL BACKGROUND

Where the parents themselves have undergone a lengthy period of formal education (e.g. 10 years of schooling) they may be more aware of the behaviour and attitudes expected of children in schools. In particular, they may be better placed to assist their children with their schoolwork. If you have any information about parent educational background, please show how you consider it influences student achievement.

4. FAMILY STABILITY

If the family is one in which the child cannot feel secure in his/her relationships or where frequent changes of locale affect his/her emotional equilibrium, it may be more difficult for that child to maintain the steady effort required to succeed in school. If you have any information about particular students' family background, please indicate the influence you consider family stability to have on school achievement.

INTRODUCTION

The purpose of this document is to obtain your assessment of students with respect to their ability and background.

PART I - ABILITY

Occasionally certain children will reveal an interest or an understanding, which do not fit their usual pattern of achievement but which indicate unexpected ability. We are aware that most teachers have such insights and that they could be most useful in identifying students of high ability. The level of ability you estimate may not necessarily be reflected in the schoolwork the student is presently submitting.

PART II - BACKGROUND

Some students come from backgrounds where the pattern of language, the economic circumstance, the educational level of the parents, or the instability of the family makes it difficult for them to achieve at school. In other homes there is a close match between the behaviour patterns and those anticipated by the school. We recognize that over time teachers build up a detailed knowledge of the students' home background. This seems to happen mostly when there are important factors to be aware of. If you don't have the information, just leave the space blank.

Although we are using standardized tests as one form of identification, we recognize their limitations and the need to balance their results with teacher assessments. Your assessments will greatly assist the Pr.E.S.S. project to find useful ways of identifying underachieving high-ability students.

EXPLANATION OF AREAS OF ABILITY

The following explanations are provided to assist in making clear what we mean by each of the terms related to ability.

1. COMPREHENSION (ORAL)

The ability to understand what is said. This would be shown by an ability to answer questions accurately following the reading aloud, of e.g. a story by the teacher, or listening to a broadcast.

2. COMPREHENSION (WRITTEN)

The ability to understand or interpret what is written. This would be shown by an ability to follow written instructions accurately or by accurately answering questions about a written passage.

3. ORAL EXPRESSION

The ability to convey ideas in a suitable oral form. This could be shown by recounting an actual experience accurately. The skills of oral expression may include fluency but more importantly they involve choosing appropriate expressions.

4. WRITTEN EXPRESSION

The ability to convey ideas in a suitable written form. This could be shown by writing a story or compiling a science report. The skills of written expression may include the choice of a suitable expression or style to fit the purpose of the writing such as the use of colourful adjectives in a description. The focus here is on the quality of the ideas and the degree of communication. The technical skills of spelling and punctuation should not be considered.

5. NUMBER CONCEPT UNDERSTANDING

The ability to understand concepts such as place value. This could be shown by the ability to set out calculations usefully and to discuss the operations being performed.

6. PROBLEM SOLVING IN NUMBER

The ability to apply mathematical concepts in practical exercises or in new or slightly unfamiliar problems.

7. GENERAL REASONING

The ability to think clearly. This could be shown by the child working out the sequence of events in a scientific experiment such as the effect of different amounts of light on certain plants, or by being the child that thinks out the best ways of organizing children for a game.

8. IMAGINATION

The ability to think of and apply novel approaches to forms of expressive activity such as written expression, art, craft and drama.

PART I

ASSESSMENT OF ABILITY

Please rate the pupils on each of the areas shown on the separate answer sheet by writing in the space provided the number that best describes the pupil's ability in that area. Please use the following scale:

1. Very good
2. Good
3. Average
4. Weak
5. Very weak

Please rate all of the pupils on one criterion at a time.

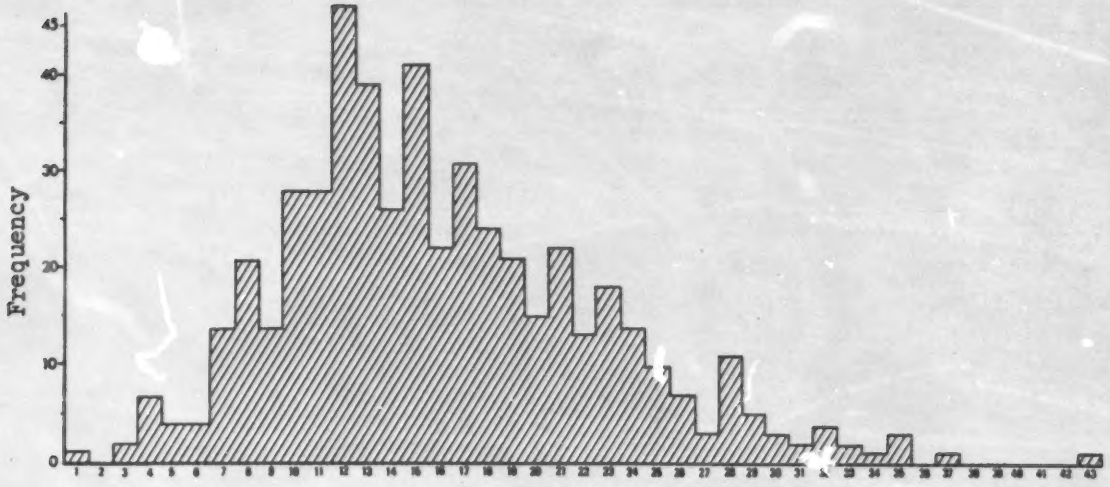
ASSESSMENT OF HOME BACKGROUND

Please rate the pupils by selecting the number which best indicates the influence of their home background on their achievement at school. Please use the following scale:

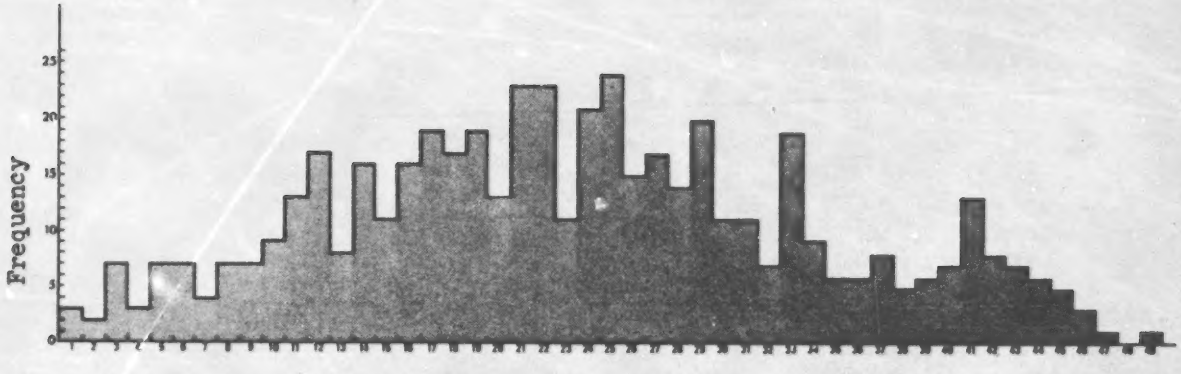
1. Very helpful
2. Moderately helpful
3. Not known
4. Moderately unhelpful
5. Very unhelpful

APPENDIX 3: RESULTS OF THE ARITHMETIC AND READING TESTS

ACER Word Knowledge



ER AM4 Arithmetic



APPENDIX 4: MEAN TEST RESULTS COMPARED ACROSS ETHNIC GROUPS

	BOYS	N	GIRLS	N	COMBINED	N
Australians						
IQ	51.5		54.7		53.3	
READING	52.9	120	57.2	108	54.9	228
ARITHMETIC	49.9		55.7		52.6	
Italians						
IQ	44.1		59.3		49.1	
READING	41.5	62	50.9	29	44.5	91
ARITHMETIC	46.0		57.4		49.6	
Portuguese						
IQ	30.5		39.0		34.5	
READING	33.0	22	36.2	6	34.9	28
ARITHMETIC	44.8		51.2		46.5	
Yugoslavs						
IQ	49.1		64.5		54.2	
READING	43.2	22	52.7	14	47.1	36
ARITHMETIC	54.3		68.0		60.0	
British						
IQ	51.3		56.4		52.8	
READING	46.8	18	68.7	12	54.7	30
ARITHMETIC	45.5		54.6		49.1	

APPENDIX 5: MEAN TEST RESULTS COMPARED ACROSS ETHNIC GROUPS AND 'LANGUAGE SPOKEN AT HOME'

ETHNIC GROUP	TEST	BOYS	N	GIRLS	N	TOTAL	N
Italians							
1. English	IQ	50.8	(10)	67.8	(7)	57.2	(17)
spoken	READING	52.3		59.8		55.3	
at home	ARITH.	51.1		60.4		54.8	
2. Ethnic	IQ	42.7	(52)	57.0	(22)	47.2	(74)
Language	READING	39.6		48.4		42.2	
at home	ARITH.	45.0		56.6		48.8	
Portuguese							
1. English	IQ	46.0	(4)	-	(0)	46.0	(4)
spoken	READING	39.4		-		39.4	
at home	ARITH.	38.9		-		38.9	
2. Ethnic	IQ	27.2	(18)	45.7	(6)	31.3	(24)
Language	READING	33.8		37.5		34.6	
at home	ARITH.	46.4		55.6		48.7	
Yugoslav							
1. English	IQ	44.1	(5)	38.3	(2)	52.9	(7)
spoken	READING	43.5		69.8		51.0	
at home	ARITH.	57.8		88.1		67.9	
2. Ethnic	IQ	50.5	(17)	66.6	(12)	57.7	(29)
Language	READING	43.1		49.7		46.1	
at home	ARITH.	53.3		64.7		58.4	

APPENDIX 6: RANKS OF THE TOP STUDENTS ON ACHIEVEMENT AND I.Q. MEASURES USING ACHIEVEMENT AS A BASE (N = 550)

READING AND MATHEMATICS ACHIEVEMENT	TEACHERS' GLOBAL RATING	TEACHERS' STRUCTURED RATING	INDIVIDUAL WISC-R FULL-SCALE	NON-VERBAL I.Q. TESTS
1	7	10	21	24
2	16	7	10	3
3	16	24	2	14
4	1	10	3	3
5	7	10	5	1
6	7	10	19	30
7	-	1	-	-
8	16	-	12	3
8	-	-	-	-
8	-	-	-	-
8	7	1	-	30
12	7	-	-	30
12	-	24	5	30
14	-	-	14	64
15	-	-	-	-
16	1	7	19	-
17	-	-	-	-
17	-	10	-	3
17	-	1	-	64
20	-	1	25	40
20	-	21	-	14
22	-	-	-	64
23	-	0	26	64
23	16	1	-	-
23	16	-	-	14
23	16	-	-	-
23	16	35	-	14
28	16	-	-	40
28	-	-	-	-
28	-	10	-	-
28	16	-	-	-
32	16	10	8	40
33	-	-	-	-
36	16	-	-	-
37	16	24	1	14
37	16	1	-	-
39	7	-	-	-
40	-	-	-	-
40	-	-	-	-
40	-	-	-	30
43	-	24	-	14
43	-	-	-	3
43	16	24	-	30
43	-	-	-	40
47	16	-	-	-
47	-	-	-	3
47	-	7	-	30
47	-	-	-	-
47	-	-	-	-
47	-	-	-	-

APPENDIX 7: RANKS OF THE TOP STUDENTS ON ACHIEVEMENT AND I.Q. MEASURES USING I.Q. AS A BASE (N = 550)

NON-VERBAL I.Q. TESTS	TEACHERS' GLOBAL RATING	TEACHERS' STRUCTURED RATING	INDIVIDUAL WISC-R FULL-SCALE	READING AND MATHEMATICS ACHIEVEMENT
1	5	7	10	5
1	-	1	-	-
3	-	16	-	-
3	2	16	7	10
3	-	-	-	4
3	-	-	-	5
3	8	16	-	12
3	4	1	10	3
3	-	-	-	-
3	-	-	-	17
3	43	1	-	-
3	17	-	10	-
3	47	-	-	-
14	20	-	-	21
14	23	16	-	-
14	-	-	-	44
14	37	16	24	1
14	3	16	24	2
14	-	-	-	28
14	43	-	22	-
14	-	-	-	13
14	-	-	-	-
14	23	16	35	-
24	-	-	-	39
24	-	-	-	48
24	-	16	24	29
24	1	7	10	21
24	-	-	-	-
24	-	16	24	11
30	47	-	7	-
30	-	16	-	33
30	-	-	-	31
30	6	7	10	19
30	12	7	-	-
30	40	-	-	-
30	8	7	1	-
30	-	16	-	21
30	43	16	24	-
30	12	-	24	5
40	-	-	-	42
40	43	-	-	-
40	-	-	-	-
40	-	16	-	31
40	32	16	10	[illegible]
40	20	-	-	25
40	-	-	-	9
40	-	1	10	-
40	-	-	-	43
40	-	-	-	-
40	28	16	-	-
51	-	16	35	-
51	-	-	-	-

APPENDIX 8: DESCRIPTIONS OF THE STANDARDIZED TESTS USED

1. The Jenkins (Intermediate) Non-Verbal Test

This test is an Australian adaptation of the Scale of Non-Verbal Mental Ability prepared by J.W. Jenkins and published by the National Foundation for Educational Research in England and Wales. The original Jenkins test was selected for adaptation in Australia because it was composed of non-verbal material which had been shown to provide a good measure of the general ability or intelligence of children between the ages of ten and thirteen years. The Australian version of the test has been made slightly more difficult than the original test so that it would be suitable for use with Australian children between the ages of ten and fourteen years.

The test is composed of eighty non-verbal items of a diagrammatic type which are separated into five sub-tests of approximately equal length. The items within each sub-test are arranged in ascending order of difficulty and are preceded by a worked example illustrating the principle involved in that particular sub-test. The first and third sub-tests are based on the principle of classification, the second and fourth on the identification of serial order, and the fifth on the solution of diagrammatic analogies. The whole test is preceded by two pages of practice items in which each type of item is first attempted by and then explained to the child. About forty-five minutes are required for the administration of the test, twenty-four minutes of this being the actual working time.

Jenkins Non-Verbal Test Manual
Australian Council for
Educational Research 1958.

2. The Ravens Black and White Standard Progressive Matrices

Progressive Matrices (1938) is a test prepared in England by John C. Raven, M.Sc., Director of Psychological Research, The Crichton Royal, Dumfries. It was designed as a test of a person's capacity at the time of the test to apprehend meaningless figures presented for his observation, see the relations between them, conceive the nature of the figure completing each system of relations presented, and by so doing, develop a systematic method of reasoning.

The PM.38 contains five sections (A,B,C,D,E) each of twelve items printed in a booklet for use with a separate answer sheet. Each of the sixty items is a design or matrix from which a part has been removed. A student is required to examine the design and decide from a number of pieces given below it, which is the right one to complete it. In each of the five sets the first problem is as nearly as possible self-evident. The following problems become progessively more difficult. Standard training in the method of working is provided in the origin of the tests.

This test can be given successfully to almost any testee irrespective of age, linguistic ability or physical defects. Young children, mentally defective persons and very old people are not expected to solve more than the problems in Sets A and B of the scale, and perhaps the easier problems in Sets C and D. For normal results, Sets A and B provide little more than training in the method of working. With children under ten years of age it is preferable to use the coloured Progressive Matrices, 1947.

Australian norms prepared in 1955 by the A.C.E.R. cover the range 10.0 to 18+ years.

Manual for Standard Progressive Matrices
Australian Council for Education, 1958, p.3.

3. The ACER AM4(iv) Whole Numbers Computation

The AM4 (iv) is a 49-item test of students' ability to perform straight forward computations in each of the four operations. The items are presented in both number sentence and computational format. Items in the four processes are presented in random order but with increasing difficulty. There are a few items requiring the application of several operations but no word problems.

The test was issued by the Australian Council for Educational Research in 1969.

4. The ACER Arithmetic Tests

These four tests are measures of the child's ability to add, subtract, multiply and divide with speed and accuracy when working with one to four digit numerals. The results for each operation are timed and scored separately. All items are set out in computational format so that the student needs only add any necessary working and the answer. There are no number or verbal problems.

The revised edition was published in 1968.

5. The ACER Word Knowledge

All forty items have the format of a key word followed by four words from which the student is asked to select the one which has most nearly the same meaning. These are contextual clues.

The test was published by ACER in 1971.

5. The ACER Comprehension

This test was selected because the questions following the short written passage require direct comprehension rather than interpretation or observation. The test presents a variety of types of writing including poetry and play excerpts.

The test was published by ACER in 1971.

16084/12/81—1400—L/1134 WILLIAM C BROWN, Government Printer, Western Australia